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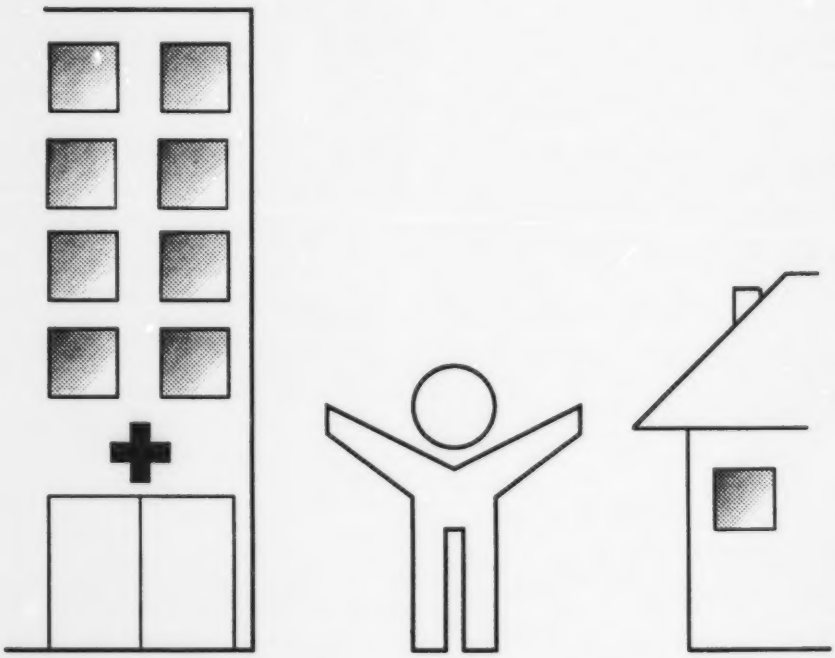
MINISTRY OF HEALTH
HON. JOHN JANSEN, MINISTER

British Columbia Children's Hospital

Report of the PROVINCIAL PEDIATRIC HOSPITAL UTILIZATION STUDY STEERING COMMITTEE



October 1990

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Executive Summary

British Columbia's Children's Hospital (BCCH) is the principal pediatric hospital in the province. Constructed in the early 1980s, it brought together the existing pediatric services in Vancouver teaching hospitals. Its planners designed the facility to serve three major clinical roles: first, to provide primary and secondary care to Vancouver's children; second, to provide tertiary care to children from other areas of the province; and third, to serve as the teaching and research centre for pediatric care.

But for a number of reasons, the facility subsequently proved inadequate to meet the needs for which it was designed. Because of economic restraint, Children's Hospital was built smaller than originally planned. As well, since it opened the hospital has been more heavily utilized than anticipated. Population growth was projected to decline when the hospital was planned: instead, population in the Lower Mainland has grown rapidly. Also, Children's wide range of specialties and services, and its child-centred approach to pediatric care, have attracted patients from all over the province.

Hospital staff and administrators recognize the discrepancy between the workload the facility was designed for and the workload it actually carries. They anticipate the demand for services can only get worse as the population of British Columbia, and particularly in the Lower Fraser Valley/Vancouver area, expands. **As Children's Hospital is the sole provider of pediatric tertiary care in our province, this mismatch affects not only Children's "one facility," but the entire provincial pediatric system.**

A joint Ministry of Health/Children's Hospital Steering Committee was formed to study the utilization of B.C. hospitals by children. The purpose of the study is twofold:

- to look at patterns of utilization -- that is, which children, from where, use what hospitals
- to consider how to make high quality care available to all B.C. children

About This Report

This report is the result of that study. It considers the problems of present utilization patterns and identifies the barriers to improved, accessible care.

Chapter 1 describes the background of the present situation, as well as some anticipated trends in child numbers, distribution and need for pediatric health care.

Chapter 2 reviews present hospital utilization and patterns of utilization in different parts of the province, particularly the use of Children's Hospital. The results clearly show the demands placed on that hospital, and the extent to which services are provided in local communities for local residents.

To accurately assess "where we are" in delivering pediatric services in B.C., the Committee tried to provide a province-wide overview. Such an overview can be used to plan for the development of pediatric hospital services in a coordinated manner, with each institution knowing its role and the role of other facilities.

Chapter 3 discusses the results of two studies carried out by the Committee. The first analyzed the use by children of Emergency Departments of hospitals in the GVRHD. The second surveyed all B.C. hospitals providing pediatric services for:

- the types of service and the resources available locally

- the perceptions of the changes that are desirable and possible

As a result of this survey, a number shortcomings in services were identified, including:

- a lack of adolescent and mental health services
- the need to provide a greater range of services locally -- services such as ambulatory clinics for relatively common conditions like asthma and diabetes
- the need for post-basic RN courses for nurses working outside pediatric specialty hospitals
- the need for Children's Hospital to foster and support these services in other centres

Chapter 4 discusses the need for:

- adequate standards for staff, their training and skills
- equipment and facilities
- coordinated policies and practices

Some of the standards can be adopted from standards accepted by professional associations and from elsewhere. However, as in the case of special pediatric ambulatory clinics, the support of Children's Hospital will be essential to provide the necessary standards and to gain public acceptance of the quality of care.

Chapter 4 also addresses surgical and anaesthetic requirements, as well as the requirements of other areas where changes are likely to be required. The Emergency Department is one such area.

Chapter 5 offers recommendations that flow out of the findings of the Committee's analysis, studies and survey.

Recommendations

The recommendations of the Committee try to balance the advantages of a specialized centre, on the one hand, with the considerable disadvantages of high centralization, on the other. Since there is no simple answer to the question of which approaches are desirable *and* feasible, the recommendations propose a number of complementary strategies designed to enhance pediatric services in B.C.'s hospitals.

The first strategy is aimed at establishing better utilization patterns, with special emphasis on providing more services locally. The second strategy consists in improving standards, co-ordination and planning. The third strategy seeks to get players to see themselves as part of a system -- by relying, for example, on outreach services.

Recommendations 2.1 - 2.3 result from the background issues and the trends and utilization patterns examined in Chapters 1 and 2. The Committee recommends:

- expanding B.C.'s Children's Hospital
- enhancing pediatric services in the other hospitals in the GVRHD -- in particular, developing a major pediatric centre in the east of the Region
- developing a wider range of services in hospitals outside the Lower Mainland by means of outreach and support from BCCH

Recommendations 2.4 - 2.7 call for:

- information about pediatric services in the province
- an ongoing mechanism to oversee and co-ordinate the development of new services

- the monitoring of patterns of utilization so that changes can be more readily recognized

Recommendations 3.4 - 3.5 address the concerns identified by the survey on the shortcomings of the current system. The Committee recommends that:

- Children's Hospital support local clinics by providing protocols, education and assistance in monitoring the quality of care.

Recommendation 3.6 deals with the training needs of nurses distant from Vancouver. It identifies the need for:

- educational institutions to provide distance learning courses

- financial support for training which cannot be obtained locally

What now?

Implementing the recommendations offered in this report will not be without cost. Both Children's Hospital and the Ministry will need to provide financial and staff resources. The hospital administrators and professionals addressed in the recommendations will need to commit time and energy. The changes will *not* happen without this coordination and enthusiasm. Good intentions are easily lost in the day-to-day demands of operating a hospital and an insurance system.

But the price for not acting on these recommendations is even higher. Inaction will mean disjointed -- and often wasteful -- delivery of pediatric services. It will also mean continued major gaps in the system, including a shortage of tertiary care resources.

A multi-year commitment by the Ministry and Children's Hospital is required. The Committee believes that this report should be studied and then discussed jointly by these two parties, and a plan of action established to implement, with committed resources, as many of the recommendations as possible within a fixed timeframe.

Introduction

Pediatric Services in B.C. Today

Hospital pediatric services in the province, like most other health services, have developed in response to demand and the availability of resources -- and in light of changing treatment and diagnostic protocols. We have no overall plan to identify **what services** should be provided **where**, or **what** kinds of **standards** should be in place. There has been no coordination of information among facilities to help monitor and evaluate the services we are providing or to plan for the services we will need to provide in the future.

There are a few exceptions. Some specific specialist services, such as neonatology, have developed in a more organized fashion. The need to care for acutely ill newborns has forced the development of a regionalized system of neonatal intensive care units and a centrally directed transport system. Yet even this system does not work very well. Maternity services are not always coordinated with neonatal services, and referrals from more distant hospitals are not always sent to the nearest centre. In addition, there has been no organized attempt to maintain common standards, policies and procedures.

Pediatric services in hospitals in British Columbia provide good quality care. Staff is well motivated to develop services. However, there is no coordinated system of pediatric services among the hospitals. Each facility operates as an independent unit.

B.C. Children's Hospital (BCCH) was born into this environment of unplanned and uncoordinated pediatric services. It has been eight years since BCCH opened its doors on the Oak Street Site in Vancouver. Two factors made the planning stages of the facility difficult. First, as a new pediatric facility, it was hard to predict the facility's utilization with any precision. Second, during the planning period the province was in the throes of a recession. Economic restraint meant that the hospital was smaller than initially intended. Now, five years

later, the impact of the actual size -- and actual utilization -- of the facility can be assessed.

How This Report Came About

To evaluate how building deficiencies affect hospital operations, the hospital Board initiated a review of the facilities. Its purpose was to identify deficiencies which were detrimental to operations and to assess the need for expansion in order to correct the deficiencies and to cope with future growth. After some preliminary work, BCCH approached the Hospital Programs division of the Ministry of Health to approve the hiring of consultants to plan the physical expansion.

In addition, BCCH proposed the formation of a joint BCCH-MOH Steering Committee to study Children's Hospital's utilization in the province. The Committee's purpose was:

- to identify the effects of utilization on workload
- to identify how the construction of BCCH affected health care delivery in other areas of the province
- to review BCCH's successes and shortcomings and help define its future role.

This is the report of the Steering Committee. It does **not** detail how far BCCH should expand, nor does it precisely define what its role and function should be in relation to other pediatric facilities in the province. It **does** outline its current role relative to other hospitals, both in the GVRHD and in the province, as well as give an idea of what a future pattern of pediatric hospital care might look like.

The report also examines the services available to children in B.C.'s hospitals and suggests how services and programs might be improved. Putting these recommendations into practice will require the financial support of Hospital Programs and on-going, in-depth discussions among the province's larger general hospitals.

Exclusion

The report does not deal with a number of issues. **Neonatal Services** were largely excluded. They were the subject of a review and report by a Continuing Advisory Sub-Committee on Perinatal Care in 1988 (Bibliography - Ref. 1). Agreement has been reached on how and where tertiary level units should be provided.

Adolescent Services also were not examined in depth. Most of the demand for hospital services by adolescents is not related to problems that are specific to adolescence. Except for the Adolescent Medicine Unit of BCCH and Sunny Hill, it is difficult to find good data on the present *use* of adolescent services in order to establish the *need* for such services. Eating disorders, which often occur in adolescence, have been dealt with in a recent report on the McCreary Society (Bibliography - Ref. 2). **Adolescent Psychiatry Services** are expected to be better handled by the proposed Child and Adolescent Psychiatry/Mental Health Service for Vancouver, for which a new site is actively sought.

This report is addressed to Children's Hospital and to Hospital Programs, Ministry of Health. We hope it will also be of use to hospitals elsewhere and to all those interested in health services for children.

Chapter 1

History

The health of children has greatly improved in the almost 50 years since the Second World War. This has been due to a combination of factors like immunization, better housing, better diet, smaller family size and greater accessibility to health care.

Over the past 20 years, the admission of a child to a hospital has become a rarer event. Annual rates have fallen from 98 cases and 521 days per 1,000 population in 1975 to 75 cases and 337 days per 1,000 population in 1989 (see Table 1A on page 12).

TABLE I(A)
PEDIATRIC CASES AND DAYS PER THOUSAND POPULATION IN BRITISH COLUMBIA AND SELECTED REGIONS
1976 - 1987

		YEAR			
		1976	1981	1986	1987
ALL B.C.	Cases	98	86	76	75
	Days	521	410	352	337
G.V.R.H.D.	Cases	73	67	58	59
	Days	387	337	312	12
VANCOUVER	Cases	71	63	53	55
	Days	401	359	320	350

1. Pediatric cases and days refer to children aged 0 -14 The figures exclude newborn days

2. The Local Health Areas included in GVRHD have increased over the years shown

Source: Acute Care Bed Matrix, Institutional Information Resources BC Ministry of Health

Although the majority of this drop represents a true decrease in the use of hospitals by children, it is also partly due to a much greater use of ambulatory care.

Almost all hospitals have traditionally provided pediatric services. But as the number of children admitted to hospital has decreased, the pediatric units of many hospitals have become progressively less utilized (see Table 1B on pages 14 through 17).

Table 1B
Utilization of Hospitals by Children
0 - 14 Years of Age (1984)

GVRHD HOSPITALS						
HOSPITAL	1976 APPV'D CHILD BEDS	1984 APPV'D CHILD BEDS	1984		OCC. RATE (%)	BEDS REQ'D @ 75% OCC.
			CASES	CHILD DAYS		
ST. VINCENT'S	25	15	173	484	9	2
BCCH	281	233	7791	65878	77	241
MT. ST. JOSEPH	10	15	481	1978	36	7
R.C.H. + E.R.	43	25	1696	10851	119	40
ST. MARY'S	51	10	496	1147	31	4
LION'S GATE	44	15	989	3667	67	13
LANGLEY	24	24	1076	2938	34	11
SURREY + P.A.	53	44	2946	10130	63	37
RICHMOND	26	24	633	2235	26	8
BURNABY	37	27	1207	5808	59	21
GVRHD TOTAL	594	432	17488	105116	67	385

Table 1B, Continued
Utilization of Hospitals by Children
0 - 14 Years of Age (1989)

GVRHD HOSPITALS					
HOSPITAL	1989 APPV'D CHILD BEDS	1988 - 1989		OCC. RATE (%)	BEDS REQ'D @ 75% OCC.
		CHILD CASES	CHILD DAYS		
ST. VINCENT'S	15	52	96	2	0
BCCH	242	7588	67916	77	248
MT. ST. JOSEPH	11	479	1900	47	7
R.C.H. + E.R.	25	1890	10382	114	38
ST. MARY'S	10	416	820	22	3
LION'S GATE	15	1008	3249	59	12
LANGLEY	10	988	2430	67	9
SURREY + P.A.	41	2446	7417	50	27
RICHMOND	24	559	1797	21	7
BURNABY	27	936	4133	42	15
GVRHD TOTAL	420	16363	100140	65	366

Table 1B, Continued
Utilization of Hospitals by Children
0 - 14 Years of Age (1984)

NON-GVRHD HOSPITALS

HOSPITAL	1976 APPV'D CHILD BEDS	1984 APPV'D CHILD BEDS	1984		OCC. RATE (%)	BEDS REQ'D @ 75% OCC.
			CHILD CASES	CHILD DAYS		
MISSION	10	10	512	1639	45	6
M-S-A	14	17	977	3721	60	14
MAPLE RIDGE	24	25	527	1668	18	6
VICTORIA	131	55	3336	17017	85	62
KELOWNA	28	23	786	2568	31	9
VERNON	22	22	1063	4059	51	15
PENTICTON	15	15	593	2568	47	9
ROYAL INLAND	50	36	1684	7247	55	26
NANAIMO	27	22	1265	5241	65	19
CHILLIWACK	18	19	698	2930	42	11
PR. GEORGE	63	51	2192	10107	54	37
BC TOTAL	**1571**	**1093**	**47525**	**230443**	**58**	**842**

Table 1B, Continued
Utilization of Hospitals by Children
0 - 14 Years of Age (1989)

NON-GVRHD HOSPITALS

HOSPITAL	1989 APPV'D CHILD BEDS	1988-1989		OCC. RATE (%) OCC.	BEDS REQ' @ 75%
		CHILD CASES	CHILD DAYS		
MISSION	10	445	1249	34	5
M-S-A	17	1178	4234	68	15
MAPLE RIDGE	25	687	1960	21	7
VICTORIA	55	3194	11969	60	44
KELOWNA	23	864	3959	47	14
VERNON	22	1077	2586	32	9
PENTICTON	15	765	2960	54	11
ROYAL INLAND	36	1562	6183	47	23
NANAIMO	22	1183	4120	51	15
CHILLIWACK	19	676	2270	33	8
PR. GEORGE	32	2175	9041	77	33
BC TOTAL	**1043**	**45084**	**219229**	**58**	**801**

Notes: The BCCH figure for beds in 1976 includes 201 at VGH and 86 at the old Children's. The 1984 and 1989 figures include 57 'beds' in the MICU.

The occupancy rate is understated to the extent that adolescents aged >15 are admitted to the pediatric unit.

B.C. Children's Hospital

In response to the decreasing utilization of hospitals by children and the increasing specialization of much of the treatment, Vancouver's children's inpatient services were consolidated at one site in the mid-1970s. After a considerable reduction in the planned size of the pediatric facility, the British Columbia's Children's Hospital was opened in 1982. Mount Saint Joseph's Hospital is now the only general hospital in Vancouver that has an inpatient pediatric ward.

Intent

The intent of the B.C. Children's Hospital was to serve as the primary/secondary inpatient unit for children living in the Vancouver area, and to serve as the tertiary care hospital for children from anywhere in the province. Because of the concentration of expertise, it was also designed to run an extensive program of ambulatory care clinics, including day surgery. Again, the primary role of these clinics was to provide tertiary care services as well as some primary and secondary care for Vancouver children. This primary and secondary ambulatory function, which is also carried out in specialists' offices, was included because of the requirement for teaching. It also had the advantage of keeping specialists on site, which is of increasing importance in the care of the acutely ill child.

Reality

The assumptions on which the building of the B.C. Children's Hospital were based have not been borne out in practice. Many children from other areas within Greater Vancouver have turned to the Hospital for their primary and secondary care. This is understandable given the popularity of the Hospital, its child-centered approach to care, and the specialists and expert staff who work there. Its relative proximity to a significant number of Richmond and Burnaby residents is also a factor. The hospital is undersized to take on this additional workload.

When B.C. Children's Hospital was designed, declining birth rates and slow provincial population growth dictated its size. Instead of declining, however, the pediatric population grew (see Table 1D) and the

hospital had to cope with the increased demands resulting from this growth. Demand for services was further exacerbated by a downsizing of the hospital during the design stage.

Effects of High Utilization

Since its opening, the hospital has been utilized at a very high rate. Its inpatient services have operated at full capacity virtually since it opened. Ambulatory care programs, including the Emergency Department and Day Surgery, have also expanded consistently. The Hospital's popularity and high utilization have had two main effects.

First, high demand has stretched the physical resources of the hospital and its staff to an unreasonable extent. As a result, children who require the kind of care and treatment available only at Children's are having to wait unreasonable lengths of time to be admitted there.

Second, it has diminished the number and variety of pediatric patients seen in some of the community hospitals in the Vancouver area. In Richmond's case, this 'pull' has reduced the local pediatric service, allowing the beds to be occupied by adults, thereby reducing available pediatric beds and compounding the problem (see Table 1B).

This unanticipated growth is one of the factors underlying the urgent need to expand Children's Hospital. Expansion is essential if Children's is to:

- respond to existing deficiencies
- meet population growth
- handle tertiary care demands.

A third, less obvious effect of the limited facilities is the relative inability of Children's to function as a leader for institutions and communities outside of the immediate Vancouver area. For example, the very successful Transport Teams are known and appreciated in all parts of the province. However, the education and support of staff in these communities is much less than both the community hospitals and Children's Hospital would like it to be. The day-to-day clinical workload has absorbed nearly all of the Hospital's resources. The Hospital has no surplus resources to devote to outreach and continuing education roles -- roles no other institution can adequately fill.

TABLE 1C: BRITISH COLUMBIA POPULATON
0 - 14 YEARS

REGION	YEAR				
	1981	1986	1991 (est)	2001 (est)	2011 (est)
VANCOUVER	60,460	61,120	68,206	85,408	89,296
GVRHD*	216,170	225,650	257,959	309,169	304,252
SURREY	37,960	45,595	57,621	70,959	76,129
ABBOTSFORD LANGLEY MAPLE RIDGE MISSION	45,060	50,655	70,959	79,173	96,071
BC - GVRHD	372,130	366,650	386,918	407,504	456,031
ALL BC	588,300	592,300	644,877	716,673	760,283
BC TOTAL POPULATION	2,744,470	2,889,207	3,203,184	3,814,407	4,413,753
0 - 14 POPULATION AS % OF TOTAL POPULATION	21	21	20	19	17

* The GVRHD now includes Langley LHA. For the sake of consistency over the years, the Langley figures have been abstracted from the estimates for GVRHD.

Source: Health Planning Data Base
Ministry of Health
From Census figures and Estimates.

Background Factors

Demography

After twenty years of contraction, the hospital services for children now need to expand. In the period since Children's Hospital was built, the pediatric population of the province has increased in absolute numbers, although not as a proportion of the population (see Table lD, pages 23 through 26).

TABLE 1D: APPROVED HOSPITAL BEDS BRITISH COLUMBIA, 1989				
HOSPITAL	**COMMUNITY**	**BEDS** Exluding Bassinets in Nursery	**PATIENT DAYS** in 1988-1989 (0-14yrs)	**BEDS** needed @ 75% occ.*
B.C.C.H.	Vancouver	238	67916	219
Victoria General	Victoria	55	11513	39
Surrey	Surrey	35	6850	23
Royal Inland	Kamloops	36	6183	21
Prince George	Prince George	32	9041	31
Cowichan	Cowichan	27	3118	11
Burnaby	Burnaby	27	4133	15
Royal Columbian	New Westminister	25	9767	36
Maple Ridge	Maple Ridge	25	1960	7
Richmond	Richmond	24	1797	7
Kelowna	Kelowna	23	3959	14
Cariboo Memorial	William's Lake	23	2210	8
Vernon	Vernon	22	2586	9
Nanaimo	Nanaimo	22	4120	15
Fort St. John	Fort St. John	21	1535	6
Prince Rupert	Prince Rupert	20	2555	9
Chilliwack	Chilliwack	19	2270	8
M.S.A.	Abbotsford	17	4234	15
Lion's Gate	North Vancouver	15	3249	12
Penticton	Penticton	15	2960	11
Dawson Creek	Dawson Creek	15	1430	5
Kitimat General	Kitimat	14	754	3
St. John	Vanderhoof	13	1053	4
Powell River	Powell River	12	864	3
Cranbrook	Cranbrook	12	1265	5
Trail	Trail	12	1582	6

TABLE 1D: APPROVED HOSPITAL BEDS BRITISH COLUMBIA, 1989				
HOSPITAL	**COMMUNITY**	**BEDS** Exluding Bassinets in Nursery	**PATIENT DAYS** in 1988-1989 (0-14yrs)	**BEDS** needed @ 75% occ.*
Lillooet	Lillooet	12	354	1
West Coast General	Port Alberni	12	1296	5
Campbell River	Campbell River	12	1354	5
Mt. St. Joseph	Vancouver	11	1900	7
Kootenay Lake	Nelson	11	715	3
St. Mary's	New Westminister	10	820	3
Langley	Langley	10	2430	9
Mission	Mission	10	1249	5
Mills Memorial	Terrace	10	3040	11
Fort Nelson	Fort Nelson	9	719	3
G. R. Baker	Quesnel	9	1158	4
100 Mile House	100 Mile House	8	542	2
Fraser Canyon	Hope	8	390	1
Nicola Valley	Merrit	8	1204	4
Wrinch Memorial	Hazelton	8	511	2
Shuswap Lake	Salmon Arm	7	387	1
St. George's	Alert Bay	7	212	1
Queen Victoria	Revelstoke	6	201	1
Burns Lake	Burns Lake	6	636	2
Peace Arch	White Rock	6	567	2
South Okanagan	Oliver	6	146	1
Saanich Penisula	Saanichton	6	150	1
St. Mary's	Sechelt	6	496	2
Fernie District	Fernie	6	272	1
Sparwood	Sparwood	5	847	3
Port Hardy	Port Hardy	5	507	2

TABLE 1D: APPROVED HOSPITAL BEDS BRITISH COLUMBIA, 1989				
HOSPITAL	**COMMUNITY**	**BEDS** Exluding Bassinets in Nursery	**PATIENT DAYS** in 1988-1989 (0-14yrs)	**BEDS** needed @ 75% occ.*
St. Joseph	Comox	5	2097	8
Kimberley	Kimberley	5	242	1
Windermere	Invermere	5	133	0
Creston Valley	Creston	4	224	1
MacKenzie & District	MacKenzie	4	336	1
Boundary	Grand Forks	4	155	1
St. Bartholomew's	Lytton	4	87	0
Tofino	Tofino	4	239	1
Ashcroft	Ashcroft	4	152	1
Castlegar	Castlegar	4	426	2
Bella Coola	Bella Coola	3	224	1
Bulkley Valley	Smithers	3	1328	5
Golden	Golden	3	380	1
Squamish	Squamish	3	360	1
Summerland	Summerland	3	110	0
Chetwynd	Chetwynd	2	653	2
Ladysmith	Ladysmith	2	226	1
Arrow Lakes	Arrow Lakes	2	288	1
Port Alice	Port Alice	2	62	1
Queen Charlottes	Queen Charlotte	1	141	1
CFS Holberg	Massett	1	4	0
Port McNeill	Port McNeill	0	230	1
Stuart Lake	Stuart Lake	0	1270	5
Stewart	Stewart	0	12	0
Slocan Community	Slocan	0	12	0
St. Paul's	Vancouver	0	1671	6

TABLE 1D: APPROVED HOSPITAL BEDS BRITISH COLUMBIA, 1989				
HOSPITAL	**COMMUNITY**	**BEDS** Exluding Bassinets in Nursery	**PATIENT DAYS** in 1988-1989 (0-14yrs)	**BEDS** needed @ 75% occ.*
Victorian	Kaslo	0	18	0
Tahsis	Tahsis	0	28	0
Lady Minto	Ganges	0	75	0
Royal Jubilee	Victoria	0	455	2
Cassiar	Cassiar	0	33	0
University Hospital	Vancouver	0	500	2
Vancouver General	Vancouver	0	2913	11 +
Delta	Delta	0	113	0
R. W. Large Memorial	Waglisla	0	254	1
St. Vincent's	Vancouver	0	96	0
McBride & District	McBride	0	153	1
Dr. Helmcken	Clearwater	0	99	0
Eagle Ridge	Coquitlam	0	615	2
	TOTAL	**1081**	**197421**	**721**
Sunny Hill	Vancouver	55	7985	29
Queen Alexandra	Vancouver	65	12628	46

* Based on 1988-89 patient days for childred aged 0-14 yrs (excludes newborns)
Occupancy rate = 85% for BCCH
Occupancy rate = 80% for Victoria General, Royal Inland, Surrey, and Prince George hospitals

\+ These cases are mainly specialized services such as Bone Marrow Transplant and Burns Unit

This increase is not evenly distributed throughout the province. There is disproportionate growth in the Lower Mainland. While projections are liable to some degree of error, the trend toward an increased population in Greater Vancouver and the surrounding areas is unlikely to change. Estimates show that between 1986 and 2011 the population in the 0 - 14 age group will increase by 28% in B.C.; by 39% in the GVRHD; and by 90% in the Lower Fraser Valley LHAs of Mission, Maple Ridge, Langley and Abbotsford.

Thus, we can anticipate increased pressure on Children's Hospital both in its role as a health care provider in the Greater Vancouver area, and in its role as a tertiary care centre. As the population of children in the GVRHD grows, the present pattern of utilization of Children's for tertiary care will be impossible to maintain unless services are increased and improved in the local communities and/or Children's is expanded.

While the **numbers** of children are increasing, the **percentage** of the population in the 0 - 14 age group is dropping. That means that the pressure for *adult* beds will increase faster than for pediatric beds. Experience shows that when pediatric beds are utilized in a fluctuating manner at a lower occupancy level than adult units, they tend to be taken over by adult patients. This is particularly true where the pediatric workload is insufficient to warrant a separately-staffed unit. A conscious effort will be needed to protect pediatric services in local hospitals in the Vancouver area.

Utilization Trends

Chapter 2 deals with utilization in some depth. In this chapter, we want to examine utilization trends in a more general way.

Although overall utilization rates have been dropping (see Tables 1A and 2A), the trend is unlikely to continue over the next decade. The rate of decrease has been much slower over the past five years than in the ten years from 1976 to 1986 (see Table 1A). There are a number of reasons for this. First, the opportunities to transfer care from an inpatient to an outpatient setting

are now limited. Further transfers will require new technologies and considerably more community-based support. Second, even if overall utilization rates in terms of cases per thousand drop, it is unlikely to diminish demand for beds. The increasing survival of chronically and severely ill children is likely to lead to longer lengths of stay and more chronic readmissions. Increased demand is thus likely to grow roughly in proportion to the pediatric population.

Resources

Hospital

On paper, there are sufficient pediatric beds in the province to cope with the population growth, given present utilization rates (see Table 1D on pages 23 through 26). But the beds are *not* situated in areas where the pediatric population is growing fastest -- the Vancouver area. This explains the pressure on Children's Hospital's beds.

While beds are a very important component of the health care system, they are only part of the picture. Ambulatory care, Emergency Departments, home programs and the coordination of care are becoming progressively more important.

Physicians

Pediatrician manpower has increased faster than the pediatric population (see Table 1E, page 30). This increase has occurred almost entirely in the metropolitan areas, particularly in the Vancouver area -- where the increase in the pediatric population is centered.

The increase is largely accounted for by an increase in subspecialists. In the GVRHD there are many subspecialty pediatricians, each providing care on a referral basis, often directly from a Family Practitioner.

Where only one or two pediatricians work in a community, it is hard to provide ongoing, 24-hour cover for long periods of time. Further, the number of general

pediatricians in the Interior, the North and on the Island outside Victoria has not increased.

The effectiveness of the pediatricians in different areas of the province must also be considered. Some practitioners have consciously decided to live in some areas because of lifestyle reasons, such as the availability of good recreational facilities. The service they provide may be more limited than that of pediatricians practising in a group and providing round-the-clock cover. Most pediatricians in these settings provide consultant care, and on a referral basis only.

Nursing

Due to lack of data, it is not possible to make similar statements concerning nursing manpower. Except for the nursing shortage in Vancouver, there does not appear to be a shortage of nursing staff in the pediatric units in the province. However, we do not know whether the nurses in the pediatric units have sufficient pediatric training and are exposed to a sufficiently broad range of pediatric illnesses to be up-to-date in their knowledge of pediatric nursing.

Chapter 3 shows the results of a questionnaire concerning nursing staff qualifications and experience in pediatric units throughout the province. In general, while it seems formal education in pediatric nursing is very sparse, many nurses in pediatric units have extensive experience.

TABLE 1E: PEDIATRICIAN MANPOWER - BRITISH COLUMBIA 1982 - 1987

SOURCE	1982		1987		% CHANGE
	NUMBERS	RATES/ 10,000 POPULATION	NUMBERS	RATES/ 10,000 POPULATION	
Medical Dictionary	139		168		+21
Non Post-Grad Dir.	138		165		+20
MSP BC Billers	143	0.52	162	0.55	+13
F.T.E.s*					
All BC	112	0.41	131	0.45	+17
Metro Areas #	106	0.73	124	0.8	+17
Non Metro Areas	37	0.28	38	0.28	+2
Fee For Service Pediatricians					
All BC	80.5	0.29	97.4	0.33	+21
Metro Areas #	49.1	0.34	62	0.4	+26
Non Metro Areas	31.4	0.24	35.3	0.26	+12

* All FTE calculations are based on each physician receiving greater than $45283 (in 1982-83 fee-adjusted dollars = $52,053 in 1987-88 dollars = 1 FTE. All others are counted as the proportion of their receipts to the mean receipts of their FTE peers.)

\# Metropolitan areas = Greater Vancouver (Vancouver, Burnaby, Richmond, West and North Vancouver,Surrey and Delta) + Capital (Greater Victoria, Saanich, Sooke and the Gulf Islands)

Non-Metropolitan areas = the rest of B.C.

Source: Fee Practice Medical Service Expenditures per capita and Full-Equivalent Physician in British Columbia 1987 - 88. Published by the Health Manpower Unit, Division of Health Services Research and Development

The Committee briefly considered the requirement for formal standards of training for nurses working with children, but it felt the topic was beyond the competence of the members. If this issue is to be addressed, it should be done by an appropriate body such as an interest group within the RNABC.

Distribution of Resources

There *are* clearly identifiable problems in the distribution of resources and in the mix of staffing skills. In the Greater Vancouver area, for example, there are approximately 320 designated pediatric beds, excluding Neonatal Intensive Care (see Table 1B). But of the 170 beds outside Children's Hospital, up to 50 are closed or used by adults.

As well, even if the number of pediatricians in the province increased by almost 30 individuals over the past five years (see Health Manpower Report - U.B.C.; Table 1E), nearly all of the new pediatricians practise in Vancouver. Even Vancouver has some difficulty in attracting some subspecialists such as neonatologists, pediatric gastroenterologists and pediatric neurologists.

With sufficient resources to meet demand, if present trends continue, the solution to the problem would seem to suggest a simple redistribution of resources. But that is not so simple in practice. There are a number of points to consider:

- Utilization patterns take time to develop. Once developed, they take time to change. Unless patients, their families and physicians can be assured that alternative services are of a quality equivalent to that at Children's Hospital, attempts to divert demand from Children's Hospital to other centres is likely to be resisted.

- A pediatric service in a regional hospital must have significant specialist involvement if it is to be supported by parents, family physicians and other pediatricians as an alternative to Children's. Hospitals with medical staffs with a strong family

practitioner orientation may not support a specialist-run pediatric service. In addition to the pediatric service itself, improvements in other services, such as obstetrics, surgery and anesthesia, are required.

- Specialist services require support services that may be warranted only where a number of speciality services are gathered together. Thus, child psychologists, diagnostic imaging technicians experienced in handling children, laboratory services attuned to small samples related to pediatric diseases, etc. -- all are essential support services. They cannot be built up and maintained in the absence of a large pediatric service. For example, Victoria has a pediatric population of nearly 50,000 children locally, and over 100,000 on Vancouver Island. It has eight pediatricians and some 3,500 surgical operations performed on children each year. Yet, there is only one practising specialist pediatric surgeon, and it has not been possible to retain a pediatric pathologist on a permanent basis.

- Some of Children's Hospital's services are provided to children who do not live in Vancouver and who do not require subspecialty care. However, diverting all of these cases to community hospitals would diminish the service base of Children's, perhaps to the point that subspecialists could not support their specialty interests. In other words, to maintain a specialist with a particular rare skill, there must be a fair amount of "bread and butter" work to keep the specialist occupied between the more exotic cases that require his/her particular expertise.

- The provision of specialized pediatric care in hospitals other than Children's requires more than simply the right equipment, adequate numbers of pediatricians and pediatric nurses, and resources like beds, O.R. time and Ambulatory Care Clinics. Hospital boards, family physicians and specialists such as anesthetists must also agree that pediatrics is a service that merits a commitment of resources. Further, sufficient funding is needed to provide

primary and secondary hospital care at the same level as that of Children's.

Summary

This chapter has examined the demographic and utilization trends for pediatric services. In subsequent chapters, we examine how increased services can be provided by Children's. We also explore the possibilities and limitations of providing services safely and economically in other settings.

Chapter 2

Inpatient

Inpatient utilization of hospitals by children has decreased over the past two decades (see Table 1A). The rates, both for the province as a whole and the GVRHD, show a consistent decrease, with 56 admissions and just over 300 bed days per 1,000 population in GVRHD in 1987.

However, inpatient utilization rates are not the same across all regions of the province. Use of children's services in urban areas is lower than in rural areas (see Tables 2A and 2A-1 on pages 36 through 38).

TABLE 2A: PEDIATRIC UTILIZATION OF HOSPITALS
R.H.D.

R.H.D.	1987		
	POPULATION 0-14 YRS	UTILIZATION PER 1000 POP'N	
		CASES	DAYS
1. Alberni-Clayoquot	6866	98	456
2. Bulkley-Nechako	9891	152	677
3. Capital	49939	68	237
4. Cariboo	14860	109	467
5. Central Coast	816	192	748
6. Central Fraser Valley+	33758	75	308
7. Central Kootenay	10693	83	287
8. Central Okanagan	18550	56	282
9. Columbia-Shuswap*	8649	66	210
10. Comox-Strathcona	16072	63	284
11. Cowichan Valley	11931	102	404
12. Dewdney-Alouette	17458	89	362
13. East Kootenay*	12037	89	285
14. Fraser-Cheam	13133	78	380
15. Fraser-Fort George	21448	105	447
16. Greater Vancouver	232934	57	315
17. Kitimat-Stikine	10181	123	589
18. Kootenay Boundary	6420	91	328
19. Mount Waddington	3664	136	612
20. Nanaimo	17533	68	289
21. North Okanagan	12342	77	266
22. Okanagan-Similkameen	12262	74	260
23. Peace River-Liard*	12867	90	348
24. Powell River	3742	88	479
25. Skeena-Queen Charlotte	5548	142	714

R.H.D.	1987		
	POPULATION 0-14 YRS	UTILIZATION PER 1000 POP'N	
		CASES	DAYS
26. Squamish-Lillooet	4875	103	362
27. Stikine	484	134	483
28. Sunshine Coast	3583	67	234
29. Thompson-Nicola	21904	88	368
30. Fort Nelson-Liard	1400	144	572
TOTAL	595840	75	336

+ Central Fraser Valley includes Langley. GVRHD excludes it.

* The rates for these Regions may be underestimated as referrals to and use of Alberta hospitals are not included in these figures.

TABLE 2A-1: PEDIATRIC UTILIZATION OF HOSPITALS by SELECTED L.H.A.s

SELECTED L.H.A.s	1987		
	POPULATION 0-14 YRS	UTILIZATION PER 1000 POP'N	
		CASES	DAYS
Abbotsford	16198	74	324
Langley	17560	77	293
Surrey	46777	70	375
Delta	18153	49	234
Richmond	22030	46	221
Vancouver	66341	53	337
Burnaby	23715	61	322
New Westminster	5673	61	292
Coquitlam	25047	59	262
Maple Ridge	11000	78	301
Mission	6458	107	471
North Vancouver	18529	54	320
West Vancouver	6669	44	258
Greater Victoria	36754	67	239

TABLE 2B

HOSPITAL UTILISATION BY CHILDREN BY PLACE OF RESIDENCE AND SITE OF HOSPITALISATION

1987 - 1988

ACUTE HOSPITAL DISCHARGES0 - 14 YEARS

REGIONAL HOSPITAL DISTRICT NO.	NAME	FROM HOSPITALS IN R.H.D. CASES	%	DAYS	%	FROM HOSPITALS IN NEIGHBOURING RHD CASES	%	DAYS	%	FROM B.C.C.H. CASES	%	DAYS	%	FROM ALL OTHER HOSPITALS CASES	%	DAYS	%	TOTAL ACUTE HOSPITAL DISCHARGES CASES	DAYS	UTILISATION RATES /1000POPN CASES	DAYS
1	ALBERNI-CLAYOQUOT	474	71%	1756	59%	108	16%	583	20%	30	4%	342	12%	58	9%	290	10%	671	2971	95	445
2	BULKLEY-NECHAKO	1161	77%	3435	60%	206	14%	1194	21%	75	5%	864	15%	68	5%	209	4%	1510	5702	143	637
3	CAPITAL	3238	95%	10527	90%	-	0%	-	0%	104	3%	964	8%	70	2%	204	2%	3412	11695	74	265
4	CARIBOO	1292	81%	4161	63%	-	0%	-	0%	130	8%	1243	19%	179	11%	1167	18%	1601	6571	103	441
5	CENTRAL COAST	120	78%	264	48%	-	0%	-	0%	25	16%	254	46%	8	5%	29	5%	153	547	183	713
6	CENT. FRASER VALLEY	1873	75%	5610	59%	-	0%	-	0%	307	12%	2370	25%	315	13%	1539	16%	2495	9519	75	330
7	CENTRAL KOOTENAY	670	76%	1685	57%	95	11%	443	15%	41	5%	436	15%	76	9%	381	13%	882	2925	87	302
8	CENTRAL OKANAGAN	911	90%	3606	83%	-	0%	-	0%	61	6%	544	13%	40	4%	189	4%	1012	4319	59	299
9	COLUMBIA-SHUSWAP	391	69%	874	48%	109	19%	584	32%	28	5%	190	11%	40	7%	156	9%	568	1804	67	212
10	COMOX-STRATHCONA	823	82%	2741	66%	-	0%	-	0%	84	8%	845	20%	98	10%	551	13%	1005	4137	61	277
11	COWICHAN VALLEY	902	74%	3302	69%	248	20%	1150	24%	51	4%	317	7%	13	1%	16	0%	1214	4785	105	414
12	DEWDNEY-ALOUETTE	984	64%	2664	44%	101	7%	565	9%*	251	16%	2048	34%	197	13%	788	13%	1533	6065	87	357
13	EAST KOOTENAY	1039	97%	3188	93%	-	0%	-	0%	18	2%	182	5%+	16	1%	62	2%	1073	3432	*87	*277
14	FRASER-CHEAM	831	82%	3299	72%	-	0%	-	0%	111	11%	755	17%	75	7%	514	11%	1017	4568	80	391
15	FRASER-FT. GEORGE	2038	92%	7910	85%	-	0%	-	0%	115	5%	1002	11%	73	3%	341	4%	2226	9253	97	414
17	KITIMAT-STIKINE	1063	86%	4681	80%	-	0%	-	0%	77	6%	657	11%	103	8%	491	8%	1243	5830	114	544
18	KOOTENAY-BOUNDARY	446	77%	1318	71%	44	8%	105	6%	48	8%	315	17%	40	7%	127	7%	578	1865	95	343
19	MOUNT WADDINGTON	341	69%	1077	57%	26	5%	229	12%	41	8%	259	14%	84	17%	312	17%	492	1877	124	560
20	NANAIMO	942	80%	3155	65%	-	0%	-	0%	145	12%	1184	24%	91	8%	498	10%	1178	4837	71	302
21	NORTH OKANAGAN	828	88%	2598	82%	-	0%	-	0%	49	5%	313	10%	62	7%	268	8%	939	3179	80	275
22	OKANAGAN-SIMILKAMEEN	802	89%	2541	80%	-	0%	-	0%	57	6%	470	15%	48	5%	146	5%	905	3157	83	292
23	PEACE RIVER - LIARD	1006	88%	3153	78%	-	0%	-	0%	78	7%	725	17%	60	5%	279	7%	1144	4157	84	327
24	POWELL RIVER	251	77%	766	51%	-	0%	-	0%	48	15%	393	26%	26	8%	333	22%	325	1492	90	485
25	SKEENA Q.CHARLOTTES	685	88%	2402	72%	-	0%	-	0%	55	7%	740	22%	35	5%	208	6%	775	3351	133	669
26	SQUAMISH LILLOOET	384	61%	774	45%	60	12%	202	12%*	95	19%	551	32%	41	8%	185	11%	500	1722	98	342
27	STIKINE	44	68%	115	49%	7	11%	35	15%	9	14%	43	18%	5	8%	41	18%	65	234	123	443
28	SUNSHINE COAST	157	66%	403	49%	-	0%	-	0%	51	22%	283	35%	29	12%	131	16%	237	817	72	251
29	THOMPSON NICOLA	1740	91%	6350	84%	-	0%	-	0%	94	5%	838	11%	74	4%	345	5%	1908	7533	85	355
SUBTOTAL	BC minus GVRHD	25356	83%	84345	71%	1004	3%	5090	4%	2278	7%	19127	16%	2023	7%	9791	8%	30661	118353	2568	10605
16	G.V.R.H.D.	8006	63%	31785	55%	-	0%	-	0%	4390	34%	25150	43%	378	3%	883	2%	12774	57828	59	312
	NON-RESIDENTS	-		-		-		-		111	21%	784	38%	418	79%	1267	62%	529	2051		
TOTAL - BRITISH COLUMBIA		33362	45%	116140	39%	1004	1%	5090	2%	6668	9%	64188	22%	33513	45%	111167	37%	74547	296585	75	337

^ Newborns - babies < 28 days - have been excluded to remove the effects of long Neonatal I.C.U. stays from the utilisation patterns

* The neighbouring RHD is a hospital in a neighbouring LHA within GVRHD

+ In the case of RHD 13 - East Kootenay - referrals to Calgary create an artificially low utilisation of BCCH

TABLE 2B-1

HOSPITAL UTILISATION BY PLACE OF RESIDENCE AND SITE OF HOSPITALISATION

LOWER MAINLAND

1987 - 1988

ACUTE HOSPITAL DISCHARGES 0 - 14 YEARS

REGIONAL HOSPITAL DISTRICT	LOCAL HEALTH AREA		FROM HOSPITALS IN L.H.A.			FROM HOSPITAL IN NEIGHBOURING L.H.A.			FROM B.C.C.H.			FROM OTHER HOSPITALS			TOTAL ACUTE HOSPITAL DISCHARGES		UTILISATION RATES /1000POPN	
NUMBER	NO.	NAME	CASES	%	DAYS	CASES	%	DAYS	CASES	%	DAYS	CASES	%	DAYS	CASES	DAYS	CASES	DAYS
6	34	ABBOTSFORD	929	78%	3344	64%			151	13%	1274	24%	115	10%	633	12%	1195	5251	75	330
6	35	LANGLEY	819	61%	1816	35%	206	15%	736	14%	205	15%	1978	38%	119	9%	620	12%	1349	5150	75	287
6		TOTAL	1748	69%	5160	50%	206	8%	736	7%	356	14%	3252	31%	234	9%	1253	24%	2544	10401		
12	42	MAPLE RIDGE	528	61%	1415	43%	82	10%	401	12%	164	19%	1234	37%	87	10%	256	8%	861	3306	76	293
12	75	MISSION	428	62%	1193	39%	93	13%	414	14%	107	15%	1097	36%	64	9%	338	11%	692	3042	106	468
		TOTAL	956	62%	2608	41%	175	11%	815	13%	271	17%	2331	37%	151	10%	594	19%	1553	6348	87	357
16	36	SURREY	2067	63%	6528	37%	185	6%	1666	9%	612	19%	7998	46%	401	12%	1348	8%	3265	17540	69	372
16	37	DELTA	37	4%	55	1%	466	52%	1734	41%	289	32%	2115	50%	98	11%	341	8%	890	4245	47	223
16	38	RICHMOND	435	43%	1290	26%		0%		0%	445	44%	3024	62%	136	13%	567	12%	1016	4881	45	215
16	39	VANCOUVER	392	11%	1406	6%		0%		0%	2460	70%	16913	76%	657	19%	4070	18%	3509	22389	55	350
16	40	NEW WEST.	191	55%	716	43%		0%		0%	65	19%	684	41%	91	26%	254	15%	347	1654	66	315
16	41	BURNABY	499	35%	2294	30%	272	19%	1023	13%	487	34%	3473	46%	177	12%	835	11%	1435	7625	61	327
16	43	COQUITLAM	183	12%	407	6%	826	56%	2966	45%	264	18%	2331	35%	207	14%	866	13%	1480	6570	56	249
16	44	NORTH VANC.	708	71%	2800	47%		0%		0%	238	24%	2822	48%	46	5%	308	5%	992	5930	52	313
16	45	WEST VANC.		0%		0%	189	65%	761	44%	86	30%	884	51%	16	5%	75	4%	291	1720	47	280
16		TOTAL	4512	34%	15496	21%	1938	15%	8150	11%	4946	37%	40244	55%	1829	14%	8664	12%	13225	72554	59	312
		GRAND TOTAL	7216	42%	23264	26%	2319	13%	9701	11%	5573	32%	45827	51%	2214	13%	10511	12%	17322	89303		

Note that this table INCLUDES discharges from the Neonatal Intensive Care Unit at BCCH
The totals for GVRHD are, therefore, greater than those shown in Table 2B

In part this is due to a greater availability of beds in the rural areas, and the fact that greater distances to be travelled make precautionary admissions and slightly longer lengths of stay common. Another likely factor is the continuous pressure on the pediatric beds in large and specialized urban hospitals, with resulting close scrutiny of bed utilization.

Ambulatory Care

Utilization in ambulatory care is harder to monitor. With the exception of day care surgery, reports on ambulatory care visits to hospitals do not indicate the patient's place of residence. Further, in all hospitals other than Children's, reports are not routinely prepared on the basis of the age of patients visiting outpatient or emergency departments. It is therefore impossible to say whether outpatient and emergency service utilization have changed over the same period. If we assume the use of these services by children has changed in the same way as the whole population, then visits to emergency and specialized outpatient services are likely to have increased over the past 10 years, and at a rate somewhat greater than the increase in the population as a whole. Chapter 3 and Appendix B report the results of a survey of the Emergency Departments of GVRHD Hospitals.

Surgery

The overall surgical rates per 1,000 pediatric population have not changed greatly over the past 10 years (see Table 2C on page 41).

However, the percentage of day surgery has increased considerably, from 35 percent of cases in 1976 to 47 percent of cases in 1987-88. The figure rises to 53% if non-surgical procedures on inpatients are excluded (see Table 2D on pages 42 and 43).

TABLE 2C: 1979/80 - 1988/89 PEDIATRIC (0-14 YRS) INPATIENT AND DAY CARE SURGICAL PROCEDURES WITH RATES PER 1,000 BRITISH COLUMBIA POPULATON

YEAR	POPULATION	DAY CARE	PER 1,000 POPULATION	INPATIENT	PER 1,000 POPULATION	TOTAL	PER 1,000 POPU-LATION	% DAY CARE
1979/80	573,805	11,635	20.28	22,040	38.41	33,675	58.69	34.55
1980/81	579,244	12,237	21.13	23,363	40.33	35,600	61.46	34.37
1981/82	588,315	13,226	22.48	23,077	39.23	36,303	61.71	36.43
1982/83	593,051	13,503	22.77	20,877	35.20	34,380	57.97	39.28
1983/84	595,002	15,081	25.35	23,054	38.75	38,135	64.09	39.55
1984/85	597,485	15,258	25.54	23,047	38.57	38,305	64.11	39.83
1985/86	595,884	15,114	25.36	20,742	34.81	35,856	60.17	42.15
1986/87	592,300	16,234	27.41	21,295	35.95	37,529	63.36	43.26
1987/88	595,400	17,000	28.55	19,991	33.58	36,991	62.13	45.96
1988/89	603,900	17,327	28.69	19,158	31.72	36,485	60.42	47.49

TABLE 2D: THE 25 MOST COMMON PEDIATRIC (0-14 YRS) SURGICAL PROCEDURES (fiscal year 1988/1989)

RANK	CODE NO.	PROCEDURE NAME	DAY CARE	PER 1,000 POP	IN-PATIENT	PER 1,000 POP	TOTAL	PER 1,000 POP	% DAY CARE
1	32.01	Myringotomy With Tube	3,719	6.16	235	0.39	3,954	6.55	94.06
2	40.2	Tonsillectomy with Adenoidectomy	118	0.20	2,898	4.80	3,016	4.99	3.91
3	35.2	Restoration of Tooth by Filling	956	1.58	585	0.97	1,541	2.55	62.04
4	91.01	Closed Reduct of Fracture, Radius & Ulna (wif)	370	0.61	935	1.55	1,305	2.16	28.35
5	40.5	Adenoidectomy Without Tonsillectomy	722	1.20	541	0.90	1,263	2.09	57.17
6	7.29	Other Forcible Correction of Deformity	1,098	1.82	21	0.03	1,119	1.85	98.12
7	40.1	Tonsillectomy Without Adenoidectomy	62	0.10	925	1.53	987	1.63	6.28
8	76.0	Circumcision	745	1.23	135	0.22	880	1.46	84.66
9	59.0	Appendectomy	0	0.00	873	1.45	873	1.45	0.00
10	65.01	Repair of Inguinal Hernia, Unqualified	427	0.71	285	0.47	712	1.18	59.97
11	1.34	Other Nonoperative Cystoscopy	592	0.98	60	0.10	652	1.08	90.80
12	35.19	Other Surgical Extraction of Tooth	531	0.88	31	0.05	562	0.93	94.48
13	98.12	Local Excision or Destruction of Lesion or Tissue of Skin and Subcutaneous Tissue	460	0.76	56	0.09	516	0.85	89.15
14	23.2	Advancement or Recession of Ocular Muscles	410	0.68	74	0.12	484	0.80	84.71
15	74.4	Orchiopexy	166	0.27	274	0.45	440	0.73	37.73
16	65.03	Repair of Indirect Inguinal Hernia	215	0.36	111	0.18	326	0.54	65.95
17	35.09	Extraction of Other Tooth	233	0.39	44	0.07	277	0.46	84.12

RANK	CODE NO.	PROCEDURE NAME	DAY CARE	PER 1,000 POP	IN-PATIENT	PER 1,000 POP	TOTAL	PER 1,000 POP	% DAY CARE
18	23.1	Excision of Lesion or Tissue of Ocular Muscles or Tendons	246	0.41	24	0.04	270	0.45	91.11
19	35.41	Application of Crown	242	0.40	19	0.03	261	0.43	92.72
20	35.71	Root Canal, Unqualified	221	0.37	40	0.07	261	0.43	84.67
21	30.4	Surgical Correction of Prominent Ear	165	0.27	85	0.14	250	0.41	66.00
22	35.01	Extraction of Deciduous Tooth	204	0.34	43	0.07	247	0.41	82.59
23	21.33	Probing of Nasolacrimal Duct	234	0.39	6	0.01	240	0.40	97.50
24	91.05	Closed Reduction of Fracture, Tibia & Fibula (wif)	42	0.07	183	0.30	225	0.37	18.67
25	32.1	Removal of Tympanostomy Tube	206	0.34	4	0.01	210	0.35	98.10
		TOTAL COMMON 25	**12,384**	**20.51**	**8,487**	**14.05**	**20,871**	**34.56**	**59.34**
		TOTAL ALL PROCEDURES	**17,312**	**28.67**	**15,262**	**25.27**	**32,574**	**53.94**	**53.15**

Surgery to the upper respiratory tract and the ears remain the most common operations. The removal of tonsils, adenoids, and the insertion of myringotomy tubes account for almost a third of all inpatient procedures (Table 2D). Repair of inguinal hernia and orchiopexy were the most common elective procedures after E.N.T surgery. Repair of fractures and appendectomies were the most common emergency procedures.

While Children's carries out a large proportion of the pediatric surgery in the province, the majority of it is carried out in other hospitals. Just under a quarter of the inpatient cases in the province, and just under a third of day surgery procedures, are performed at Children's (see Table 2E, page 45).

TABLE 2E: PEDIATRIC SURGERY
B.C. 1987 - 1988

Hospitals	In Patient Cases	Day Care Cases	Total Cases
British Columbia	19,991	17,000	36,991
B.C.C.H.	4,743	6,150	10,893
Rest of B.C.	15,248	10,850	26,098
Other Hospitals			
Victoria	1,633	1,609	3,242
Royal Columbian (incl. Eagle Ridge)	881	555	1,436
Surrey Memorial	1,301	565	1,866
Lion's Gate	465	468	933
Burnaby	364	127	491
Richmond	253	197	450
Royal Inland Hospital	949	679	1,628
Prince George	841	449	1,290
Nanaimo	375	698	1,073
Kelowna	499	304	803
Vernon	356	349	705
Penticton	247	227	474

If it is assumed that all surgery carried out at the Childrens' Hospital is performed by surgeons qualified in Pediatric Surgery, then just under 30% of operations on children aged 0 - 14 are performed by such surgeons.

With a likely catchment of the eastern part of the Greater Vancouver Region and the Lower Fraser Valley, a pediatric surgery unit in east GVRHD could expect a maximum of 5,000 cases per annum, allowing for 25% of cases still being carried out in BCCH.

Source: Ministry of Health Morbidity Database.

However, the proportion of surgery that can be regarded as major surgery is greater at Children's than elsewhere. For example, ENT represents only an eighth of the inpatient workload at Children's, compared to over a third of all inpatient surgery at other large hospitals.

The largest centre outside Children's Hospital is Victoria, where 3,250 cases a year are performed on children under the age of 14, compared with slightly under 11,000 at Children's Hospital. In both cases, 50 percent of the surgery is carried out on a day surgery basis. Although the pediatric surgeon in Victoria performs procedures almost exclusively on children, more than half of the child surgery is performed by other surgeons. Much of it is the responsibility of specialists such as otolaryngologists and ophthalmologists.

The next largest centre is Surrey, with just under 1,900 cases a year, followed by Royal Inland Hospital in Kamloops, with 1,600 cases, and the Royal Columbian Hospital in New Westminster, with 1,400.
From these statistics, it appears a volume of 3,250 child surgery cases will support a general pediatric surgeon. To permit adequate back-up, a centre should have two such surgeons.

If cases were appropriately referred, a population that produces 5,000 cases a year would be sufficient. With about 30,000 inpatient and day surgery procedures being performed on the 0 - 14 population in the province each year, and with a pediatric population of 615,000, such a catchment would include around 100,000 children, or 400,000 to 500,000 total population.

A smaller population might suffice, but only if some means were found to maintain the skills of the surgeons in the more complex and rare cases. Matching anaesthetic and nursing skills would also be needed, as well as the support of subspecialist pediatricians and diagnostic and therapeutic services. Chapter 4 deals with standards of care and the need to ensure an adequate workload for pediatric surgeons.

Day Surgery

In the case of visits to day care surgery programs, the patient's age and residence are recorded. Table 2C shows the visits to day surgery units by children over the past 10 years. Note that although the overall utilization rate for surgery has not changed significantly over the period, the utilization rates for day surgery show a substantial increase. Tables 2D and 2E show day care surgery as a proportion of all surgery for particular procedures (2D) and in selected hospitals (2E).

Physician Services

Pediatric use of physician services has been audited through Medical Services Plan, and is shown in Table 2F, below.

Utilization per capita has risen over the years and remained stable in 1986 and 1987. The rise has been matched by a rise in the number of pediatricians in the province (see Table 1E). Pediatrician manpower is discussed further in Chapter 4.

Table 2F
Medical Services Utilization by Children

YEAR	UNDER 1		1 - 4		5 - 14		TOTAL	
	Services	Rate per 1000 pop.	Services	Rate per 1000 pop.	Services	Rate per 1000 pop.	Services	Rate per 1000 pop.
1981	718589	18.1	1106177	7.3	2167795	5.5	3992561	6.8
1982	807232	19.2	1166373	7.5	2192023	5.5	4165628	7.0
1983	825492	19.8	1253873	7.9	2322982	5.9	4402347	7.4
1984	907918	21.4	1316097	8.1	2308190	5.9	4532205	7.6
1985	845705	20.0	1301099	7.9	2321627	6.0	4468431	7.5
1986*	407919	10.0	1689145	10.3	2470103	6.4	4567167	7.7
1987*	448509	10.8	1681197	10.2	2497799	6.4	4627505	7.7

* the allocation of services to the <1 and 1 - 4 age groups was changed in these years. If the Under 1 and 1-4 age groups are combined, the rate for the new group in line with that of previous years. It therefore seems likely that services attributed to the <1 age group in 1981 - 1985 have been allocated to the 1 - 4 age group in 1986 and 1987.

Utilization Rates

General

While pediatric inpatient utilization has been decreasing over the past 10 years, the extent to which further decreases can be expected is limited. The lowest utilization rates among LHAs are 45 cases (Delta and Richmond) and under 220 days (Delta) per 1,000 population (Table 2A). This figure *may* be attained by the other populations in GVRHD over time, but the rate of decrease is likely to be slow. Given that there is little unnecessary service for this age group in the urban areas, any decrease in inpatient use is likely to be matched by a concomitant increase in day surgery and outpatient services. At the RHD level, the GVRHD has the lowest utilization rate, at 56 cases and 306 days. Without the effect of this large population, the provincial utilization rates rise to over 90 cases and 400 days per 1,000 population.

Comparison with Other Jurisdictions

Comparison with utilization rates in other parts of Canada shows the B.C. experience is not unusual. The experience of other provinces does not provide evidence that lower utilization rates can realistically be expected. American statistics for 1984 (Bibliography - Ref. 3) show a rate of 62 cases and 279 days per 1,000 population (aged 0 -14, with newborns excluded). This rate is slightly lower than in B.C. in 1989. By regions, the U.S. West is the lowest at 42 cases and 184 days per 1,000 population. 'Self-pay' families show a similar low rate. Given the high incidence of perinatal mortality and lack of universal health insurance in the U.S., these rates may not be acceptable to British Columbians.

We conclude that utilization rates for the province are likely to continue to drop, but slowly. Because they are already low, utilization rates in the urban areas are likely to drop proportionately less than in other parts of the province. **For the purposes of this report, we have assumed that utilization rates will be 50 - 60 cases and 300 days per 1,000 population per annum in the future.** Ambulatory care visits are not expected to decrease and, in the area of specialty clinics, are likely to rise as chronically ill children are followed up.

Referral Patterns and Utilization Rates

Utilization rates based on patients' place of residence show considerable variation (see Table 2A).

A refinement of this analysis is to consider where these services were received relative to the patient's residence. These referral patterns can be compared with other patterns to estimate what effect changes in the nature and location of pediatric services might have. Note, however, that utilization in the urban areas may not necessarily reflect referral, but may reflect patient preference.

In general, because LHAs with small populations have relatively limited services, a high proportion of utilization occurs outside the LHA or even the Regional Health District. Conversely, in areas with fairly large populations, the utilization usually occurs within the LHA of residence.

Referral patterns show that some hospitals act as referral centres for children: the more complex and severely ill cases will be referred to those centres. Effectively, if the smaller RHDs are excluded, only Vancouver acts as a substantial pediatric referral centre, with Children's receiving a third of its case load and over 40% of its patient days from children residing outside GVRHD. Victoria receives 12% of its pediatric case load and 17% of its patient days outside the Capital Regional District. Kelowna receives 11% of cases and 13% of days from beyond its Region; Kamloops receives 17% of cases and 16% of days from outside its RHD; and Prince George 14% of cases and 19% of days from other RHDs.

Tertiary Care Needs

One of Children's main roles is to provide tertiary care services for children in British Columbia. No other facility can provide the necessary range and depth of services required in this area. The Committee tried to estimate the extent to which the *present* use of Children's represents tertiary care, in order to determine less appropriate use.

It is difficult to precisely define "tertiary care" and to know which cases require such services. We can estimate the workload by looking at the utilization of

teaching hospitals by patients who live in communities a reasonable distance from Vancouver and that have a fairly sophisticated level of pediatric services available locally. Such communities might include Prince George, Kamloops, Kelowna and Victoria. Utilization of Children's Hospital, including the Special Care Nursery, by children from these areas varies from less than 3 cases per 1,000 in Victoria to slightly over 6 cases per 1,000 in Kamloops. In terms of days per 1,000 population, utilization varies from 20 days for Victoria to 71 days for Kelowna (see Table 2G, page 51). The exclusion of neonatal cases decreases the rate for cases very slightly, but greatly decreases the days per thousand, reflecting the long lengths of stay of premature babies.

TABLE 2G: CALCULATION OF TERTIARY PEDIATRIC BED NEEDS

Assumption: That the use made of BCCH by children resident in communities distant from Vancouver and with good regional facilities close at hand is a reasonable proxy for tertiary care requirements.

Victoria (RHD3), Kamloops (RHD 29), Kelowna (RHD 8) and Prince George (RHD 15) fit this description.

Utilization of BCCH 1988 - 1989			
R.H.D.	**Days**	**Population (0 - 14 yrs)**	**Rate per 1,000 population**
Kelowna (8)	1,323	18,700	71
Kamloops (29)	1,572	25,000	63
Prince George (15)	1,691	24,200	70
Subtotal	4,586	67,900	68
Capital	916	46,600	20
Grand Total	**5,502**	**114,500**	**48**

Note: Assumed Tertiary Rate = 70 days per 1,000 population. This figure includes neonatal transfers, but excludes aged 15 and over.

Source: Hospital Morbidity Tables, Institutional Information Resources, B.C. Ministry of Health.

Using this method of determining tertiary care utilization, the appropriate tertiary utilization rate would be 5 cases and 70 days per 1,000 population. If these figures are applied to the whole population of the province -- 615,000 children under the age of 14* -- then we estimate the tertiary care workload will consist of some 3,075 cases a year and 43,000 patient days. At 80% occupancy, this translates into roughly 148 beds, if we exclude adolescents. This workload is appropriately treated and cared for at Children's, with some minor exceptions. For example, some of the neonatal care take place at the Level III nurseries in Victoria and New Westminster. Obviously, Victoria will continue to care for at least the present proportions of its local workload. If a similar level of service can be established in East Vancouver, then it is possible (though by no means certain) that utilization of Children's Hospital by residents of that region and the Fraser Valley may also drop below the 5 and 70 figures.

If 85% occupancy is used, the figure is 139 beds. Whether 80% or 85% is correct depends in part on what proportion of beds are in single rooms. Since single rooms allow for more flexibility of use, they have higher occupancy rates. In future bed estimates, where two figures are shown, the lower number is based on 85% occupancy, the higher on 80%. A single bed figure estimate is based on 80% occupancy, unless otherwise indicated.

* 1989 population estimate

Implications for BCCH

The figures in the previous section and the analyses that accompany them show the problems Children's Hospital faces. They contrast the **expected** role of the hospital with the **actual** functions it now fulfils. Children's was designed to be the tertiary care centre for children in British Columbia and the main provider of all levels of hospital care for children living in Vancouver.

Besides its two intended roles, Children's provides basic hospital care for children living in adjacent communities such as Burnaby and Richmond. Children's also provides a large proportion of the regional or subspecialist care for most of the GVRHD and the surrounding regions of the Lower Fraser Valley. In addition, it provides secondary level care to residents of remote regions with no suitable or accessible secondary centre.

Tertiary Bed Needs

The need for tertiary care beds (including the Special Care Nursery incubators) for the entire province might account for some 140-150 beds -- almost all of them at BCCH. Of these, approximately 40%, or 56-60 beds, will be needed for GVRHD residents. For the rest of the province, 84-90 will be required. In fact, in 1988-89, 85-89 beds were the result of care given to children (including neonates) who lived outside the GVRHD.

While the actual figure agrees with the estimated one, Fraser Valley residents' utilization of 93 days per 1,000 population is a third greater than would be predicted. Thus there are regional imbalances in actual use. In general, utilization is proportional to how distant regions are from BCCH, with the regions closest to Vancouver making the highest use.

Population projections for 2001 and 2011 estimate the B.C. pediatric population to be 717,000 and 760,000 respectively (Table 1C). The corresponding tertiary bed requirements would be 162-172 in 2001 and 171-182 in 2011, assuming utilization rates remain unchanged.

Historically, there is a tendency for tertiary services to become secondary services as the techniques and treatment protocols are standardized. Thus, new tertiary services can be seen as replacing (or forcing out to other centres) services which can now be safely delivered there.

Non-GVRHD Regional/Secondary Needs

The need for regional secondary services for communities outside the GVRHD can also be estimated. A number of communities which provide primary hospital pediatric services do not have an accessible regional centre to transfer cases to, so they use BCCH instead. These communities are usually remote and have small populations. They include the coastal areas from Howe Sound up to Prince Rupert and the Queen Charlottes. The total use made of BCCH by these populations was around 150 days/1,000. If the tertiary care rate of 70 days/1,000 is subtracted from the total rate of 150 days/1,000, the secondary care utilization rate is 80/1,000.

Thus, secondary care for populations outside GVRHD can be estimated by allowing 80 days/1,000 for the pediatric population of RHDs 5, 19, 24, 25, 26 and 28. The combined population for these regions is 25,000 children, which would require some 6-7 beds for secondary level care.

Vancouver Residents' Needs

The second major role of Children's Hospital is to provide primary and secondary care to the residents of Vancouver -- a role it shares with Mount St. Joseph's. For purposes of simplicity, the work of Sunny Hill Hospital is excluded as its admissions are almost invariably through an acute care facility.

The pediatric population of Vancouver is about 64,000. Excluding tertiary care, Vancouver's utilization rates are 50 admissions and 230 bed days per 1,000. Assuming total utilization of 300 days per 1,000 (of which 70 are tertiary care) and an occupancy of 80%, 50 beds are sufficient to meet the needs of the population.

In practice, Vancouver pediatrics accounted for just under 16,300 patient days in 1988-89, or 56 beds at Children's Hospital. Mount St. Joseph provided another 1,500 days of care to Vancouver children, or 5 beds. In addition, 649 patient days at BCCH were accounted for by adolescents aged 15 or over.

Population projections for Vancouver show estimates of 85,000 in 2001 and 89,000 in 2011. Assuming constant utilization rates, the corresponding bed needs would be 67 and 70.

Non-Vancouver Residents of GVRHD and the Fraser Valley

The *actual* services differ from the services BCCH was expected to provide to residents living in the GVRHD but outside Vancouver proper. In 1988-89, these residents accounted for 27,000 patient days or 90-93 beds. Of these, 25,500 involved children under 15 years of age. Some of this use was tertiary. Based on a population of 175,000 children for these LHAs, 11,750 patient days, or 38-40 beds, are required.

BCCH Bed Requirements

Thus, the two main roles of the Children's Hospital, including neonatal intensive care, can **theoretically** be met at present by a complement of around 200-205 beds:

- 148 for tertiary care
- 50 for primary/secondary care of Vancouver residents
- 7 for secondary care for the coastal regions

However, because of the additional demands placed on its services by residents of the GVRHD, the requirement is for:

- 148 beds for tertiary care
- 50 beds for primary/secondary care of Vancouver residents
- 7 beds for secondary care for coastal regions
- 52 beds for secondary care by residents of GVHRD outside Vancouver

- 5 beds for out-of-province and out-of-Canada patients

The total number of beds actually required is nearly 262 -- more than the number of beds currently available. This helps explain why some tertiary care patients must wait for admission to Children's.

In addition, population growth will require another 50 beds in the next ten years, and 13 more by 2011 -- **even if *no* change in referral patterns occurs.** If present utilization patterns do not change, there will also be a need for an additional 8-10 beds to cope with population growth in the Lower Fraser Valley.

The fact that Children's Hospital is so extensively used by patients who could in principle use other available facilities, reflects the Hospital's excellent reputation with physicians and the public.

The crux of the problem facing planners is whether the present hospital utilization patterns can -- or should -- be changed. The Steering Committee has attempted to provide some guidance. Chapter 3 outlines some of the reasons for these utilization patterns. Chapter 4 discusses the extent to which changes in standards are desirable.

Extended Care And Rehabilitation Utilization

There has been a considerable decrease in the number of children requiring long-term hospital care. The two specialist children's hospitals, Sunny Hill and Queen Alexandra, once provided care for chronically ill children. Now they are more involved in rehabilitation and respite care, in extensive outpatient programs, and in long-term, semi-custodial care of children.

The transfer of handicapped and chronically ill children back to the community has increased the demand for outpatient services. Families and group homes require considerable support, including Respite Care, some of which will need to be provided in a hospital.

Medical Service Utilization

The number of medical services provided to children increased steadily in the 1980s. Table 2F shows these data. Analysis by age group shows the highest rate of use is in the first year of life, with the lowest in the 10-14 age group.

Analysis by region is possible, but the use of the results is limited by the fact that the region refers to the location of the physician's practice, not the child's residence. Thus, it is not possible to look at rates per 1,000 population. Further, the rates will look highest in the regions with the most physicians because that is where the specialists practice, and therefore where referrals show up.

Hospital Utilization

As noted above, the utilization patterns show heavy use of Children's Hospital by residents of communities around Vancouver (Table 2B). The result has been a decrease in the use of pediatric beds in hospitals in these communities. St. Vincent's has closed its 15-bed pediatric ward. Mount Saint Joseph's 11-bed ward has an average occupancy of 5. Langley Hospital uses an average of 8 beds. Out of the 24 originally designated, only 10 are currently designated as pediatric. In Richmond, on average only 6 to 7 out of the 24 designated beds are occupied by children (Table 1B).

While inpatient utilization has been decreasing, the Emergency Departments of these hospitals show large numbers of visits. Children's currently sees 27,000 visits in its Emergency Department annually. Based on a survey conducted for the Steering Committee (Chapter 3 and Appendix B), Surrey Memorial Hospital sees over 20,000 children annually, and Richmond, Royal Columbian and Burnaby hospitals each see over 10,000 cases annually. These figures indicate that the GVRHD community hospitals continue to play an important triage role for children. Data on the numbers of children using these departments are not available for previous years, but if the utilization pattern of children follows that of adults, the increased use of Children's Emergency Department does not reflect a diminishing use of community hospital emergency facilities.

Recommendations

For Recommendations related to this Chapter, see Chapter 5.

Chapter 3

Introduction

Information on utilization patterns and hospital workloads can be obtained from the Ministry of Health and individual hospitals. Table 3A, page 60, shows the cases and days for all hospitals with more than 500 pediatric cases admitted or more than 1,000 pediatric patient days in 1988-89.

TABLE 3A: HOSPITALS WITH MORE THAN 500 PEDIATRIC CASES AND/OR 1,000 PEDIATRIC DAYS IN 1988 - 1989

HOSPITAL	WORKLOAD 1988 -1989 (0 - 14 years)	
	Cases	Days
B.C.C.H.	7,588	67,916
G.V.H.S.	3,184	11,968
(Victoria General)	(3,150)	(11,513)
Surrey	2,182	6,850
Prince George	2,175	9,041
Royal Columbian	1,581	9,767
Royal Inland	1,562	6,183
Nanaimo	1,183	4,120
Kelowna	1,077	3,959
Lion's Gate	1,009	3,249
Burnaby	936	4,133
Vernon	864	2,586
Cowichan	813	3,118
Pencticton	765	2,960
Chilliwack	676	2,270
Mills Memorial (Terrace)	616	3,040
Richmond	559	1,797
St. Joseph (Comox)	547	2,097
Campbell River	505	1,354
Fort St. John	483	1,535
Mt. St. Joseph	479	1,900
G.R. Baker (Quesnel)	442	1,158
Trail	432	1,582
Sunny Hill	422	7,985
Cranbrook	417	1,265
Bulkley Valley (Smithers)	388	1,328
Queen Alexandra	200	12,628

Some facts were not available as the information was either not collected, or could not be analyzed in a useful fashion. To fill in these gaps, the Steering Committee undertook two studies. The first study looked at children's use of Emergency Departments in the GVRHD. The second looked at the pediatric services available in hospitals and communities throughout the province. All hospitals except the specialist adult hospitals in Vancouver (Vancouver General Hospital, St. Paul's Hospital, University Hospital, adult rehabilitation centres and the Salvation Army Grace Hospital) were asked to respond. These studies are reported in this chapter, along with a discussion of the findings and recommendations.

Emergency Department Study

The Steering Committee wanted to identify how many children of what ages and with what problems attended which hospital Emergency Departments and when. This information was available for Children's Hospital but not for other hospitals. It also wanted to find out why Children's is used by children living outside Vancouver for whom there would be a closer hospital emergency department.

From these two studies, we expected to form some idea of the types of emergency cases coming to the hospitals, and the reasons why some parents chose not to attend the emergency department of the hospital closest to them. The studies were carried out quickly and competently by Ms. Susie Wai, a student in the Master's in Health Planning program at U.B.C., and a nurse with experience at Children's Hospital.

Study I

Only acute care hospitals with pediatric services were included in the survey. The participating hospitals were:

- Mt. St. Joseph's
- Lions Gate
- Burnaby
- Richmond General
- Royal Columbian
- Eagle Ridge
- Surrey Memorial
- Delta
- Peace Arch

The Committee is most grateful for the help provided by the staff of these hospitals, particularly the Administrators, Emergency Room and Health Records staff.

Study 1 involved retrospectively sampling all patients visiting each of the Emergency Departments on 8 days in 1988-89. The 8 days covered all different days of the week and a holiday day, and were selected from 8 different months to reflect high and low seasonal utilization. In each hospital, the Emergency Department log book was used to identify all patients attending the Emergency Department on the chosen days. For each patient, information was collected on age and sex, visit and discharge times, place of residence, reason for visit, diagnosis on discharge, type of attending physician(s), consultant referrals and disposition.

From the information gathered, the annual number of pediatric patients using each emergency department was estimated. The proportion of *all* children's visits to the department was also calculated.

Study 2

For Study 2, a questionnaire was designed to determine the reasons for the use of BCCH's Emergency Department by non-residents of Vancouver. Tested in the Emergency Department, it was administered by interviewing parents during the visit. The number of visits was less than expected, and a total of 51 patients/parents were interviewed.

Additional data were collected on 76 patients who attended the Emergency Department. Interviews were not possible because either the patient had been transferred to the Emergency Room by ambulance, the interviewer was not present when the visit occurred, or the patient lived outside GVRHD. These samples include information obtainable only from the health record. A full report is in Appendix B.

Discussion

The studies showed three of the GVRHD hospitals other than Children's saw more than 10,000 children in their Emergency Departments each year. These hospitals were Burnaby, Royal Columbian and Surrey Memorial. Richmond General saw almost 10,000 children, and should be included in this group. Surrey Memorial saw well over 20,000 children each year, a figure that matches Children's Hospital. Representing between 25 and 30 children per day, these figures imply a large catchment population. These numbers would appear to justify not only specific policies, facilities, procedures and staff training for handling children, but also some degree of specialised back-up services like anaesthesia and general surgery.

The study also indicated that over 90% of parents, when deciding which emergency department to take their sick child to for treatment, went to the hospital nearest to them.

The mix of cases seen at the Emergency Departments showed a preponderance of respiratory problems and accidental injuries. It is surprising that the diagnostic profile of non-Vancouver residents using Children's Hospital's Emergency Department was relatively similar, considering that a higher proportion of cases were taken to the Emergency Department by ambulance. This is reflected in the 16% admission rate for Children's compared to the 3% average for the other hospitals.

The other surprising finding was the timing of visits to the Emergency Departments. In the hospitals surveyed, the heaviest use was between 1600 and 2200 hours. For parents living outside the Vancouver area who used

Children's Emergency Department, the heaviest use was between 0800 and 1600 hours. The reasons for this variation are not clear. The latter sample, however, was small relative to the sample sizes at the other hospitals.

Surrey Memorial Hospital Emergency Department is seeing such high volumes of children that serious consideration should be given to developing a special service with appropriate staffing, special training and facilities. The implications of this volume on the inpatient services is unclear, as the severity of the cases is not known (3.5% were admitted or transferred to BCCH). But the local child population would support the need for some special service. For Recommendations, see Chapter 5.

Pediatric Services Questionnaire

As the services available for children in many of the hospitals in the province were not known, the Steering Committee conducted a second study. The Committee drew up and sent out a questionnaire (see Appendix C1). Responses were received from 54 hospitals, including virtually all hospitals with 10 or more pediatric beds. In spite of a pre-test, some of the questions were obviously ambiguous to some of the respondents. The answers obtained were not always comparable with those provided by other institutions. The results were tabulated, with an interpretation of unclear or incomplete answers by Dr. Thomson, who apologizes for any mistakes or misunderstandings which he may have introduced.

The tabulated results are shown in Appendix C2, and the detailed written responses in Appendices C3, C4 and C5. Only the main themes are covered in this Chapter.

Volumes

Twenty-six hospitals provided more than 1,000 days of acute patient care to pediatric patients in 1988-89. Only 18 treated more than 500 pediatric cases on an inpatient basis in the same year. See Table 3A and Appendix C2, Table a.

Utilization Rates

As discussed in Chapter 2, admission rates and patient days tend to be higher in the rural areas than in the cities. Of the 16 LHAs with more than 100 cases or 500 patient days/1,000 population annually, all but 2 are more than 250 km from the nearest, larger regional centre. See Appendix C2, Table a.

None of the hospitals outside the Vancouver area reported any difficulty in admitting children.

Beds

Pediatric Units

Other than the specialized children's hospitals (BCCH, Sunny Hill Hospital and Queen Alexandra Hospital), few hospitals have a pediatric unit reserved for children. Only Kelowna and Penticton reported assigning any of their beds specifically to adolescents. Only Victoria has a separately designated pediatric I.C.U.

Age Limits

The upper range of age limits used by hospitals varied from 5 to 19 years. The commonest upper limit was 14 years. See Appendix C2, Table b.

Manpower

Pediatricians

Apart from the 3 specialist institutions, 26 hospitals reported having at least one pediatrician on active staff. In one case, the pediatrician was described as visiting. Eleven hospitals reported only one pediatrician on active staff. Even though these figures are likely to change from time to time because there is always some movement of medical staff, the figures probably fairly represent the distribution of pediatric manpower.

Outside the Greater Vancouver and Capital Districts, 5 hospitals reported 3 or more pediatricians on active staff. Within the GVRHD, 7 hospitals reported more than 3 pediatricians on active staff.

All of the hospitals seeing 500 or more cases a year had a pediatrician on the active staff, as did 9 other hospitals

with lower caseloads. One hospital with an active pediatrician admitted less than 200 cases per year. Four hospitals with more than 1,000 pediatric patient days in the year did not have a pediatrician.

Of the general hospitals, only Victoria has a pediatrician in the hospital 24 hours a day. With 8 pediatricians on active staff, it also has more manpower than any other institution. See Appendix C2, Table b.

Specialists

Outside of the Vancouver and Victoria areas, the number of physicians with a subspecialty in pediatrics is very small. Surgeons are the most frequently cited specialists. Child psychiatrists are named by 7 hospitals, 3 of them outside the Vancouver/Victoria regions. The validity of these data is uncertain, as the level of experience and qualifications were not reported in many cases. See Appendix C2, Table b.

Nursing Staff

Most hospitals with a pediatrican on staff reported having nursing staff assigned to the pediatric unit. Apart from BCCH and the 2 other pediatric hospitals, only 3 hospitals reported a nurse on staff with post-basic certification in pediatrics. A large proportion of the pediatric nursing staff had 5 or more years experience at many of the larger hospitals outside the Vancouver area. Twelve hospitals reported having staff with more than a year's experience working in a tertiary care pediatric institution. In general, it seems that formal qualification in pediatric nursing is not common, but that many nurses on pediatric units have extensive experience. See Appendix C2, Table b.

Other Health Professionals

Few hospitals reported they had physiotherapists, occupational therapists, social workers, psychologists or respiratory technologists on staff with special training in caring for children. See Appendix C2, Table b.

Special Services

A series of questions were asked concerning the services each hospital could provide for children. If the age of the child was likely to be significant, the questions were broken down into age groups. See Appendix C2, Table c.

Chemotherapy

Seventeen hospitals indicated they provided chemotherapy, most on an inpatient and outpatient basis. A notable feature of the responses is the geographic distribution. **None** of the GVRHD hospitals, except BCCH, provide this service. Outside the GVRHD, almost every hospital with a pediatrician on active staff did.

Total Parenteral Nutrition

No hospital provided this service on an outpatient basis except BCCH. Eight hospitals apart from Children's provided the service for inpatients. Again, the geographic pattern showed that no hospitals in GVRHD provided this service other than BCCH (and the SNICU at Royal Columbian). It is provided regularly by 6 of the larger hospitals outside the GVRHD.

Respiratory Therapy

The great majority of hospitals reported that they offered respiratory therapy to children both on an inpatient and outpatient basis. Among these were some of the smallest institutions where the treatment would almost certainly be provided by a nurse rather than a technologist. There is no clear pattern either by geography or size.

Intubation

Most hospitals performing any surgery intubate children over 1 year old. A commonly reported age cut-off was 3 years old. Of the 40 hospitals reporting they would intubate a child, a majority reported an infant over 1 month of age would also be intubated if necessary.

Sixteen hospitals also reported a neonate could be intubated.

Ventilation

Twenty hospitals indicated that ventilation of neonates could be carried out -- 12 of them on a short-term or emergency basis only. In practice, it seems that few hospitals provide long term (over 48 hours) ventilator care for children under one year.

Oximetry and Blood Gases

Most hospitals could estimate blood gases.

Intravenous Therapy

With the exception of the two rehabilitation institutions, all of the hospitals would start an I.V. on a child. The younger the child, the less likely the hospital was to start an I.V.

Ambulatory Care Programs

Questions were asked concerning outpatient clinics, special facilities for children in the emergency rooms, and Day Surgery and Day Care Programs. See Appendix C2, Table d.

Organized Outpatient Clinics

Detailed results are tabulated in Appendix C2. Fifteen hospitals other than the 3 specialized pediatric hospitals reported having one or more organized outpatient clinics. The commonest type of clinic was for diabetics.

Other specialized clinics reported include: Oncology, Asthma, General Nutrition, Growth Hormone, Cleft Palate, Seizures, Scoliosis, Sexual Abuse, Renal Transplant Follow-up, Hemophilia, Special Seating, Home Apnea, and Orthopedic Special Needs. A Child Crisis Service and an Abuse Program were also noted.

Cytogenetic Services were available in 2 hospitals -- Royal Columbian and Victoria -- which implies the

provision of genetic counselling. The rehabilitation hospitals reported a number of specialized clinics.

Emergency Departments

Few hospitals reported they had a special area for children in their Emergency Departments. Apart from BCCH, 6 hospitals reported such an area. Two other hospitals reported having a crib in their ERs.

Day Surgery

Thirty-four hospitals reported they performed some procedures on a day surgery basis. Some hospitals qualified this by indicating that they performed minor procedures only.

Support Services

Hospitals were asked about the diagnostic services available to children and about the extent of support services like School and Child Life. No questions were asked about the care providers' skills or about the range and quality of the work provided. See Appendix C2, Table e.

Laboratory

All the acute hospitals indicated they could take blood from neonates and analyze most specimens by micro-methods.

Diagnostic Imaging

X-Ray: All hospitals replying to this question reported performing x-rays on children of all ages.

Ultrasound: Thirty-eight hospitals reported performing ultrasound exams on children of all ages.

Nuclear Medicine: Twelve hospitals reported performing nuclear medicine studies on children. One reported a regular travelling service.

CT Scanning: Thirteen hospitals provide this service for children.

Electrodiagnosis

Most hospitals reported that EKGs could be performed on a child. In contrast, only 13 hospitals provided an EEG service, almost all in the regional and the larger GVRHD community hospitals.

Child Life Service

Only 3 hospitals reported a formal, organized child life service -- BCCH, Victoria and Prince George. An additional 7 hospitals reported a volunteer-run child life program.

School Services

Thirty-two of the hospitals reported teachers were available, although some were on a part-time basis only.

Community Service

The questionnaire asked about the following services: physiotherapy, occupational therapy, psychology, genetics, infant development programs, special needs play schools, hearing and speech services, and mental health services.

Since these questions were aimed at communities rather than hospitals, the responses were grouped for review by geographic region, not by hospital size. The responses did not usually indicate the extent the services were available, nor the depth of expertise present. Nonetheless, the results show the extent to which residents of particular communities can obtain health services without travelling unreasonably far.

See Appendix C2, Table f.

Greater Vancouver and the Fraser Valley Region

Not surprisingly, most of the services on the questionnaire are available in this area. But, as in all other areas, genetics was the least available service. The highly specialized nature of this service can account for this.

Vancouver Island

Availability of the services on the Island decreases as you go north. All services are accessible in the southern parts but fewer are available in the northern, less populated areas. Genetics was not available in most communities.

Okanagan Valley and Southern Border

The Okanagan Valley communities seem well served in all areas, with the smaller community hospitals reporting the fewest available programs.

The Kootenays

Physiotherapy, infant development and mental health services are available in all the communities that

reported in this survey. Genetic services are not available in any of the centres.

Kamloops and Thompson

The community of Kamloops is well served, as are the more remote areas of Golden and Revelstoke -- except for the absence of mental health services in Golden. The smaller communities around Kamloops are less well provided. Residents must travel to Kamloops or elsewhere for care.

Northern B.C.

Again, the larger centres of Prince George, Smithers, Terrace, Fort St. John and Kitimat are fairly well serviced. The long distances between communities makes the presence of such services in relatively small centres important.

The additional services reported were mainly school-based programs for children with learning disabilities or behavioural problems, drug and alcohol programs, and some specialized programs. Such programs are likely more widely available than reported since the questionnaire did not specifically ask about them.

General Questions

Hospitals were asked a number of general questions concerning how their present services met the needs of their community; areas where services were lacking; their usual referral patterns; and their relationship with BCCH. A request for suggestions and comments on how to improve pediatric services was included.

The responses were recorded as written, and are shown in Appendix C4 and C5. Appendix C4 deals with the relationships with BCCH and what Children's could do to help other institutions.

Relationships with BCCH

Most hospitals were very satisfied with the service they received from Children's Hospital, particularly the

transport services which are coordinated by BCCH staff physicians. There was also fairly universal admiration for the quality of care provided and the amount of information given to parents. The written health records sent back with children transferred to a local or regional hospital are also judged to be very good.

Criticism is levelled in the area of general communications -- particularly verbal updating of the recipient hospital, forewarning of transfers, and checking that prescribed drugs *are* available in the receiving hospital. While the written communication at the time of transfer is good, and the response to questions and requests much appreciated, the formal transcripts of discharge summaries are said to be slow. They arrive well after the patient has returned home, which can make it awkward for the local physician and hospital staff. There is also some evidence that transfers arranged between physicians are not always fully communicated to the hospital staff.

Suggestions for Improvement of Services

Most hospitals felt they were doing a reasonable job in providing child health care and were willing to do more. This is to be expected in a survey where only the respondents are quoted: hospitals not interested in pediatric services are less likely to respond. Verbatim responses can be found in Appendix C5.

Psychiatric/Mental Health Services

The services most often mentioned as lacking were child and adolescent psychiatric services. Over half of the hospitals responding to this part of the questionnaire (26/47) specifically mentioned the need for services in this area. Among the services mentioned were psychology services, adolescent counselling and programs for dysfunctional families. Nineteen out of 26 of the larger hospitals mentioned this need, including 5 in the GVRHD. The distinction between counselling for families with problems, group homes for adolescents, acute psychiatric care for emergencies, and services for

child development and learning disabled children, was often difficult to make. But the general thrust was clear.

Educational Services

This theme, which is also touched upon in the next section, was the next most commonly noted area where present performance was considered inadequate. Sixteen hospitals mentioned the need for some improvement in the educational opportunities available. These included better access to degree programs for nurses outside of Vancouver, CME for GP anaesthetists, and better inservice courses. It was suggested that such courses be provided in the community rather than requiring staff to travel to Vancouver.

Adolescent Services

Ten hospitals specifically mentioned the need for adolescent clinics and other services to treat such problems as eating disorders. There were many references to adolescent services in the comments on mental health and counselling service needs.

Rehabilitation Therapists

Ten hospitals mentioned the need for physiotherapy and occupational therapy services for children. One hospital identified a need for speech therapy. Psychology services were classified under mental health services.

Other Clinical Services

There were many other suggestions for services that were lacking and might be of benefit but these are not easily classified. Among the suggestions for outpatient clinics were:

- diabetic services (9)
- general nutrition (4)
- child (sexual) abuse clinics and follow-up services (3)
- asthma (3)
- general clinics (3)

- genetics (3)
- subspecialist clinics visiting hospitals (2)

and a number of single hospital suggestions such as:

- eating disorders
- allergies
- very low birthweight follow-up clinics
- oncology

Services requiring expansion included:

- audiology (3)
- child life and play programs (3)
- social work (2)
- EEG (2)
- surgery (2)
- special needs service (2)
- a heart monitor loan service (1)
- school services for short stay patients (1)

General Support Services

A number of more general suggestions were made. These included:

- the benefits of having physician offices in the hospital
- the need for good comparative statistics
- the lack of a licensing body for counselling services
- the need for a hostel for out-of-town parents
- the need for a better hospital information system
- the need for guidelines on policies
- the need for sessional rather than fee-for-service payments to physicians for some kinds of clinical work
- the need for better community services, such as public health teaching in schools and health promotion
- the need for more community services such as home care

Hospitals in the GVRHD mentioned the need for regionalization, decentralization, and a willingness to provide more pediatric services such as clinics and special diagnostic services.

Discussion

The response to the questionnaire indicates that many of the hospitals in the province have the experience and the interest to continue to provide services to the children of their communities. No hospital seems to view child services as an area of care it wants to discontinue or feels incompetent to provide.

The replies also point out the range of services that hospitals can offer to children -- in many cases an extensive selection of diagnostic and therapeutic modalities. It is clear that in most cases the tools to do the work are available -- although additional staff and special training of staff are desirable.

The largest gap in present services is in the area of mental health services. It is a province-wide problem that affects all hospitals.

In many cases, what is lacking is the necessary mix of skills and experience, and a two-way relationship with a larger centre. Such relationships would encourage local management of patients while retaining the 'safety net' of quick referral and response from the larger centres. Better and more accessible care would result.

The replies to the questionnaire did not provide any detail on the skill levels of anaesthetists, surgeons or nursing staff. However, the absence of special qualifications or training implies that skills were gained by experience rather than through formal courses.

The praise for the transport teams attests to the value of a quick and reliable 'safety net.' It is difficult to estimate the extent to which transfers are appropriate. There is however no suggestion from BCCH that this is a problem. Some of the hospitals indicated they could accept transfers at an earlier stage in the child's recovery, but at least one noted that it had been asked

to accept a child it could not care for adequately. It is also difficult to estimate when children who should have been transferred were not. However, the levels of utilization by the more distant areas of the province - which often have only the most basic resources - do not seem to indicate variable referral rates. Further, there is no evidence that death rates, excluding accidental deaths, are any higher in areas with lower utilization rates, whether local or referred.

The many requests for education indicate a desire to learn new techniques, validate present practices and gain reassurance from the "experts" in the field. There is also a suggestion that more of the education should be held at the local hospitals. Certainly, regular updatings on common and general pediatric topics could be provided in almost any setting. If delivered by regional or tertiary centre staff, there would be the added benefit of getting to know the setting, the equipment and the personnel in local communities, thereby helping to make better decisions on transfers.

In regional hospitals with a fair-sized pediatric unit staffed by nurses who spend the majority of their time caring for children, more pediatricians expressed a willingness to perform more services. The opportunities to treat children currently being referred to BCCH from these regions may be limited. However, there are other means of improving the quality and quantity of pediatric care. These include establishing clinics and links to BCCH for following up patients.

The improved survival and longevity of children with congenital, genetic and chronic medical disorders, and the increasing sophistication and complexity of treatments for these disorders, has created a need for consultative services for regional and community hospitals to help them provide quality care in the child's home community. Establishing such services **where the population concentration warrants** would result in improved quality care for the child, decreased utilization of expensive tertiary care facilities, decreased hospitalization through the development of local

outpatient programs, decreased costs for families of chronically ill children, and less disruption of the family unit. As almost two-thirds of the children in the province live outside the GVRHD, the population that would benefit is large.

Outreach programs should be specifically designed to encourage the delivery of quality care that can be *appropriately* delivered in the home community. This care is currently being delivered at BCCH and at Sunny Hill out of necessity.

Outreach programs should provide:

- standards of care
- education programs for nursing, paramedical and medical personnel
- management guidance (data collection, information materials)
- quality assurance programs
- communication programs with the tertiary care centre for sharing patient data

Anticipated areas for program development at this time include:

- emergency services
- diabetes clinic
- asthma clinic
- oncology maintenance treatment and follow-up program
- adolescent services
- surgical clinics with high volumes -- ENT, ophthalmology, orthopedics

Other possible programs include a child abuse program and general pediatric clinics that rely on a multi-disciplinary approach.

The development clinics in a community depends on the size of the catchment population, the nature of the proposed program and the resources available within

that community. A program designed to enhance emergency services would have a more universal application than a more sophisticated program like the spina bifida clinic now successfully operating at the Victoria General Hospital.

The prevalence of diabetes mellitus among children 0-19 years old is estimated to be 1.4/1,000 in North America. This means that there are an estimated 700 diabetic children who live outside the GVRHD. Establishing ambulatory clinics at interested regional and community hospitals, with the assistance of the Diabetic Day Care Clinic at BCCH, would result in that expertise being available to a significantly increased number of children. A similar case exists for the other programs suggested above.

A related issue is the availability of pediatricians. In most cases, hospitals with a pediatrician on active staff have only one or two such specialists (see the section on Manpower). This means that there may not always be a pediatrician readily available, given the wearing on-call rota and the requirement to continue an office practice. As with other specialties, it is preferable to have at least two practitioners to allow for reasonable workloads and for reliable availability. Where the population will support it, a group of three pediatricians is preferable for the same reasons.

Pediatrics is a specialty with a relatively high proportion of urgent and emergency cases and, where neonatal care is involved, it may require immediate availability for prolonged periods while an infant is being stabilized. In these circumstances, there are distinct advantages to having the pediatrician's office in or close to the hospital. Hospital boards should consider how the availability of pediatricians' services affects the quality of care and the range of services provided. (Note that the provision of office space would be provided usually on a business-like basis, not as a perk.)

Chapter 4

Standards and Manpower

One reason for the great popularity of Children's Hospital is the perception by the public and the health care profession that the quality of care there is high. In part this is due to the many subspecialists and to the special resources and services available there.

With the exception of Vancouver General, St. Vincent's, St. Paul's, University and Delta hospitals, all the acute care community hospitals in the GVRHD have designated pediatric beds. All hospitals provide pediatric outpatient services, particularly through their Emergency Departments (see Chapter 2 and Appendix B). All of the hospitals, with the exception of Delta, Maple Ridge, and Peace Arch, have pediatricians based there or, in the case of Mission, in a hospital close by. All these hospitals also perform surgery on children.

In some of the smaller units, the inpatient pediatric service consists of a room or two in a general medical or surgical unit. This is unlikely to change since the populations that support these hospitals cannot be expected to produce the volume of cases needed to justify a separate ward. Thus in most communities, child services in hospitals will be mixed with adult services. Since the staff will not be dealing exclusively with children, they have a particular need to keep their pediatric skills up to date.

Existing Guidelines

A number of guidelines for various child health services are available. These include specific policies, usually developed by a larger hospital and made available to smaller institutions. An example is "Criteria for Suitability for Day Care" developed by BCCH. While it was designed for hospitals with skilled and varied types of staff and equipment, with adaptation it can serve as a guide.

The Steering Committee requested the Section of Anaesthesia of the British Columbia Medical Association to develop some standards for pediatric anaesthesia for

use in the province. The Section willingly agreed and the results are shown in Appendix D. The advantage of standards is that they provide criteria against which performance can be measured, which should in turn indicate whether the practices should be changed.

Health and Welfare Canada has produced a series of Guidelines for Special Services in Hospitals. Over the years, these have covered a variety of subjects related to children, including psychiatric services, long term care and perinatal care (see Bibliography - Refs. 4, 5, 6, 7).

Whatever guidelines are chosen, it is important that hospitals know which services they provide meet adequate standards and which do not. No matter how well-intentioned, staff who rarely care for children will inevitably be less expert and less able to recognize the special characteristics of childhood illness and behaviour. To try to provide low-standard services is not only expensive, it is likely to be dangerous.

On the other hand, not to provide special services and programs for children where the volume of work justifies them is to provide a lower quality of care and so to fail to meet the community's needs. Where the line should be drawn depends on many factors. The question should be carefully considered and an answer reached only after discussion with other providers, especially those who will be affected by the decision.

For example, this kind of discussion is useful when considering the development of a major pediatric centre in an institution in the east end of the GVRHD. The important question is not about cost or about which institution will get the centre. The key question is: Can a centre be developed to provide safe, accessible and varied services with standards comparable to Children's Hospital? Only when the answer to this question is "yes" are the politics and practicalities of funding worth considering.

Since quality and volume are closely related in more specialized areas of health care, we need to examine the volume of patients such a centre will likely handle.

A Look at Volumes

With an admission rate of 50 patients per 1,000 population under the age of 14, and with an average stay of around 5 days for an average inpatient census of 10 children, about 750 cases a year would be needed to make a centre viable. This requires a catchment population of 15,000 children, or a total population of 75,000 (given that about 20 percent of the population is under 14). Add to this the tendency of patients to go to larger centres such as Children's for specialty services, and it appears a population of 100,000 is needed to adequately support a separate pediatric unit in a hospital.

At present, Abbotsford, Langley, Maple Ridge and Mission do not have adequate population. However, the combined populations of Mission and Abbotsford do. MSA Hospital presently has a well-utilized pediatric unit. In Langley and possibly in Delta, population growth and referral patterns *may* result in adequate population levels too.

Nanaimo and Victoria provide an interesting natural comparison. Residents of Nanaimo use Children's Hospital four times more than Victoria residents. The two communities are quite different in size but have roughly the same travel time to Vancouver. Nanaimo has three pediatricians and a 27-bed pediatric ward. An 80% occupancy of these beds gives an average census of around 14-15 cases.

Victoria currently has 8 pediatricians, and 47 designated beds. An 80% average occupancy gives an average census of around 39 patients. In both cases, the figures refer to occupancy by children from 0 to 14 years of age, excluding adolescents and nursery cases. The service in Victoria basically serves a population of 44,000 children within the Region, plus a referral practice from other parts of the Island. Namaimo has a catchment of 16,000, with a relatively small referral catchment.

In comparison, the LHA of Surrey alone has a pediatric population of about 40,000. If the adjacent populations of Delta and Langley are added, this figure increases considerably. Since Surrey has 5 pediatricians, it appears able to support additional medical staff with specialty interests who would practice on a referral basis. The same is true for the pediatricians at Royal Columbian.

A question remains unanswered: Would the residents of Surrey and other LHAs in the Lower Fraser Valley change their utilization patterns if subspecialty pediatric services were made available locally? Or would the relative geographic proximity to Children's make such a change unlikely?

The answer depends in part on the types, quantities and quality of services provided in the local institution. It would also depend on the degree to which the service can be demonstrated to be satisfactory to local physicians and the public. It is essential that the local service meet standards equivalent to Children's Hospital's, as well as enjoy the confidence and support of that institution.

If it is desirable to provide services as close to the patient's residence as possible, and if we can convince physicians and the public to use local services rather than Children's, then at what level and at what quality should we provide services in these centres? A discussion of this point follows.

Standards

Defining standards is difficult because specific standards depend on the type of service offered. Note that most contacts with a hospital involve the ambulatory care service rather than inpatient units. In hospitals other than at Children's -- which has extensive outpatient clinics -- this means contact with the Emergency Department. The public's perception of the quality of a hospital's pediatric service is highly dependent on this very visible service because the number of visits by children to the Emergency

Department far exceeds the number of inpatient admissions. As such, the services offered by Emergency Departments are a reasonable starting point for establishing standards.

Emergency Service Standards

At a minimum, the availability of an in-house, 24-hour-a-day pediatrician will be required for an emergency service to be acceptable to a parent with an acutely/severely ill child and who is aware of the presence of Children's Hospital less than an hour's drive away. The pediatrician need not be in the Emergency Department at all times but should be in the hospital and available if required. To be acceptable as a pediatric emergency centre to the physicians in the area, the hospital should also offer a sufficient range of pediatric subspecialists to attract non-emergency referrals from Family Doctors and General Pediatricians practising in smaller communities in the region.

These characteristics are essential if the public and local physicians are to see the service as comparable to Children's Hospital.

In Patient Beds/ Surgical Services

While the great majority of visits to an Emergency Department are by children suffering from relatively minor ailments, an institution offering a pediatric emergency service must be able to deal with emergency cases when they occur. In particular, this requires the availability of anaesthetic and surgical services for children. To be able to provide these services at all times requires an on-call rota of experienced personnel. To maintain this level of expertise requires a large workload of elective emergency cases.

The above minimum requirements imply many additional services. Examples include:

- 50+ bed inpatient unit
- pediatric day surgery area
- pediatric-oriented diagnostic and therapeutic services
- laboratory, diagnostic imaging and respiratory therapy

- nurses with specialist training and qualifications in pediatric care, both medical and surgical
- other related programs, such as child psychology and child care services

All of these services must be able to handle infants, if not the tertiary care requirements of very premature neonates.

The assumption of a 50-bed unit is based on the workload in Victoria. That workload appears to be adequate to support a staff of pediatricians with specialty interests, to support the provision of services in-house 24 hours per day, and to largely support a pediatric surgeon and experienced anaesthetic staff. Smaller units are less likely to have the "critical mass" to justify these types of services at a sufficient level to be able to provide a pediatric service that could be regarded as a referral centre.

Establishing such a service would require major commitments on the part of the institution and its staff. To operate successfully, the unit would require close ties with Children's Hospital in terms of communication, education and record-keeping. Even if the necessity for teaching programs as part of such a service was not addressed, some connection with the university health professional programs would be desirable.

Chapter 5

Discussion and Recommendations

Discussion

The intent of this report was to look at the use of hospital services by children in British Columbia and to consider what improvements could be made. The excessive workload at the Children's Hospital was of particular concern. The findings support both the expansion of BCCH -- to permit it to carry out its tertiary care role -- *and* the improvement of children's services in other hospitals in the GVRHD and in other parts of the province.

A significant finding of the study was the extent of good, sophisticated pediatric services currently provided in hospitals outside the GVRHD. These services can be developed and expanded if supported by staff and programs at BCCH. Some support by BCCH is already provided but not in an organized, comprehensive way. Improved communications between the hospitals, both at the clinical and program level, can build on this foundation of support.

Such communication can benefit everyone. Patients will receive more of their care locally -- at a standard accepted by the tertiary care centre. The local hospital will be able to provide a broader range of services, supported by programs run through BCCH. The tertiary care centre will ease some of the local workload but retain information needed to assess patients when they are seen for review. The centre will also have the necessary contacts in place to permit continued research and teaching.

The recommendations that follow require considerable work before they can be said to have been accepted and acted upon. The specifics of many of the suggestions will need to be worked out with the institutions concerned and with hospital programs and other parties.

Recommendations

Chapter 2: Utilization

2.1 The services that can only be provided in Children's Hospital - tertiary care services - require adequate, protected resources. Expanding these services is a necessity, given population growth and the inevitable continued use of the hospital for non-tertiary level services by some non-Vancouver residents of the GVRHD. Present needs and population growth justify an immediate expansion of Children's Hospital by 35-50 beds. The exact number depends on the movement of existing services and whether new services are adopted. An expansion of less than 100 beds will only be adequate if:

- local community hospitals in the GVRHD maintain or expand their pediatric programs (see Recommendation 2.3)
- the referral pediatric centre in East Vancouver is successful in retaining for diagnosis, care and treatment a higher proportion of children resident in those communities than is currently the case (see Recommendation 2.2)
- the development of expanded pediatric programs outside the GVRHD is successful (see Recommendations 3.4.3, 3.5.3)

In case the projected changes in utilization patterns do not materialize, plans should permit further BCCH expansion at a later stage with minimal disruption.

2.2 In view of the extensive use made of Children's Hospital by GVRHD residents outside Vancouver, the Hospital and Hospital Programs of the Ministry of Health should encourage the development of a major pediatric service in a hospital in the eastern end of the GVRHD/Lower Fraser Valley. The function of the centre would

be to provide primary, secondary and referral services (such as exist currently in Victoria) to children living in the Lower Fraser Valley and the eastern parts of the GVRHD. Such a centre will require a staff of pediatricians with a range of specialty interests. Support from other specialists in anaesthesia and surgery will also be needed, as well as nurses trained in child care and other health professionals dedicated to child health services. The standards mentioned in Chapter 4 should apply.

When agreed upon, the centre should be supported by Hospital Programs in the Ministry of Health and Children's Hospital to ensure the necessary resources and skills are available.

2.3 The pediatric services provided by other hospitals in the GVRHD should be analyzed by each hospital, by Hospital Programs and by Children's Hospital in order to determine what changes are desirable and feasible to encourage as comprehensive a pediatric service as possible in each community hospital.

2.4 To aid in regionalizing and decentralizing non-tertiary services, a permanent committee should be established to discuss the relative roles and functions of hospitals providing pediatric care. The committee would provide coordination and overview pediatric issues at the provincial level. Participants should include representatives from hospitals and the Ministry, as well as pediatricians. The possible form and function of such a group should be discussed by Children's Hospital and by the Ministry when the recommendations of this report are considered.

2.5 Hospitals with one or more pediatricians on active staff should consider to what extent their pediatric services -- particularly in the area of specialized clinics -- could be developed with the aid of outreach and support services from BCCH.

Given the relatively high proportion of pediatric cases that are seen urgently and the requirements of neonatal care, hospital boards should consider on-site office space for pediatricians to permit better service for inpatients and Emergency Room cases.

2.6 Information on pediatric referral and utilization patterns for each group of regions should be made available to hospitals, pediatricians and other interested parties to aid in the understanding and planning of regional child health services. The Ministry of Health, through Hospital Programs, is the appropriate body to do this.

2.7 In some regions, the inter-relationships between the regional hospital and the smaller institutions in the area are well established and communications are good. In areas where this is not the case, efforts should be made to develop such relationships so that referral patterns make geographic as well as professional sense, and inter-professional consultation is encouraged.

2.8 The planning and maintenance of regional and provincial referral and utilization patterns requires administrative support to ensure the arrangements are understood and work well. Administrative and financial support for these functions should be provided by BCCH, by the regional hospitals and by Hospital Programs. Where the opportunity to establish better patterns of utilization exist, a plan to achieve this objective can be developed and implemented.

Chapter 3: Present Services

3.1 The survey results revealed that a number of hospitals saw high volumes of children in their Emergency Departments - over 25 patients between the ages of 0-19 per day. It is recommended that hospitals where over 10,000

pediatric cases are seen each year develop a special area within Emergency designed for children. Hospitals with over 20,000 visits by children per year should seriously consider providing a dedicated and possibly specialized service for children in the Emergency Department. Hospital Programs should discuss the present services with the hospitals and, if appropriate, promote discussions between the hospitals and BCCH on developing such a specialized program.

3.2 Hospitals should consider the use of an automated patient recording system in the Emergency Department. This system is often a source of useful information concerning the hospital's out-patient catchment area and the types of cases seen. Absence of such data means the type of information collected in this study is available only in the patient's health record -- information that is not very easy to use to analyze utilization. In the absence of an automated patient information system, the use of a Log Book in the Emergency Department is recommended.

3.3 In view of the large numbers of children attending the Emergency Departments of the hospitals surveyed, and in view of the high proportion of pediatric patients, all post-RN emergency courses should include a pediatric component.

Questionnaire Recommendations

Many recommendations can be made on the basis of responses to the questionnaire. How feasible and effective some of the proposals might be in addressing these problems cannot be answered easily. The Committee believes the following recommendations should be adopted. In a number of instances, the ideas proposed will be made known to the different parties involved. They include CME/CNE, BCCH, Hospital Programs and regional hospitals. The recommendations

that make sense to those who know the field best are likely to be adopted.

The recommendations are grouped under several general headings. Some relevant proposals are dealt with by recommendations appearing in Chapters 2 and 4.

Communications

3.4.1 The proposal to establish a nurse specialist position at Children's Hospital to improve the speed, safety and ease of patient discharge and transfer should be accepted. The nurse specialist should travel regularly to at least the major regional hospitals offering pediatric care in order to gain first-hand knowledge of the personnel, the skills, the equipment and the facilities available in each facility, and to discuss the successes and problems of past transfers. Over time, this function may evolve into one involving the development and application of standards for pediatric care.

3.4.2 As a product of these visits and of other available information, a Directory of the services provided to children in different communities in the province should be compiled and updated regularly. The users would be staff, including residents, at BCCH who are likely to be unfamiliar with conditions in other hospitals, particularly those outside the GVRHD. Other users and contributors might include public health nurses, physicians and staff in ambulatory care settings in BCCH and other referral sites.

3.4.3 Better communications should be fostered by establishing specific ambulatory clinics in different regions of the province. We propose a team from Children's Hospital liaise with the regional and community hospitals to develop appropriate programs for designated areas. As required for specific programs, the teams may include administrative, nursing, para-medical or medical personnel. There should be an ongoing

committee with representatives from government, BCCH and regional and community hospitals to establish priorities, standards, and funding for program development (see Recommendation 2.4).

The success of these programs will depend upon the continuing support from, and the *acknowledged affiliation* with, BCCH.

3.4.4 The child care related sections of the relevant health care professions should be encouraged to hold their regular meetings in different settings. Fostering professional inter-relationships to promote better communications on matters of clinical management should be an objective of the meetings.

Ambulatory Care

3.5.1 Recommendation 3.4.3 applies to this section also.

Establishing a network of clinics in regional and community hospitals outside the GVHRD should increase the numbers of children seen and reduce the pressure on the ambulatory clinic facilities at BCCH. An information system that allows followup and longer-term studies -- financed by the government -- should be an important part of this effort.

There would appear to be considerable scope for specialized outpatient clinics in hospitals. Some, such as Diabetic Day Care, are being established at Royal Columbian Hospital. Children's Hospital should review its present ambulatory clinics, considering the place of residence of the patients and the volumes, staffing and equipment required for a regional program, and it should aim to transfer some of the workload to other hospitals in the region. The absence of chemotherapy in other GVRHD hospitals may be an appropriate place to start.

3.5.2 There is a major need for ambulatory care clinics for adolescents and for mental health and counselling services. These clinics require a leader and coordinator, committed medical support and a multi-disciplinary team that includes nurses, psychologists and social workers.

Cooperation with community agencies and schools is particularly important in these areas. Hospital Programs should encourage the development of these services in concert with other Ministry of Health programs. Children's Hospital should provide the necessary professional leadership and support in this process.

3.5.3 Where appropriate, visiting ambulatory care clinics should be continued or initiated. The purpose of the visiting clinics may be to deliver care on a follow-up or consultative basis, or to help the local specialist or practitioner to provide care. The cost of some of these specialty clinics and services may be better met with sessional fees rather than with a fee-for-service basis.

3.5.4 BCCH can play a major role in supporting these clinics by providing clear and appropriate guidelines for their operation and for the clinical care they provide. Such support might include:

- providing protocols for the investigation, treatment and monitoring of particular types of cases (perhaps along the lines of the CCABC book sent to all physicians)

- identifying information requirements on each patient to permit monitoring and follow-up. This might include providing standard forms (like the Perinatal Assessment Forms) or perhaps a means of recording the information electronically or in machine-readable form in order to make analysis

easier. Electronic links with Children's should be a goal in order to allow for quick communication with specialists at BCCH and to allow for other monitoring/assessment needs.

Education

3.6.1 Paradoxically, the high demand for inservice and continuing education exists along with a diverse variety of training sources. Efforts should be made bring educational options to the attention of staff and institutions most in need of them. Efforts should also be made to fill the needs not met by the present options.

Coordinating educational opportunities to make them easily available to interested staff would be of value -- as would collecting suggestions for different programs, venues or topics.

Increased emphasis on local education at the individual hospital is desirable. Local training allows more staff to attend. Such local sessions can be combined with activities such as a special clinic or a discussion of specific cases or problems.

3.6.2 More extensive educational opportunities leading to certification of special skills in child care are essential if regional hospitals are to take on more of a referral role.

Post-basic RN courses need to be developed to permit nurses who intend to work in child health services to obtain appropriate training. There is a lack of such courses at present. Courses should be accessible to nurses outside the metropolitan centres through such means as teleconferences, distance learning and local and travelling faculty. Similar arrangements may be necessary for other health professionals.

Once a course is established, its completion could be made a prerequisite for employment in a hospital child care service.

Until such courses are available, it is desirable that nurses intending to work in a pediatric service take a short course to supplement and refresh their basic training in children's care. Financial support should be provided to encourage course attendance when extended absence from the workplace or travelling away from home is required.

3.6.3 In addition to the above courses, BCCH's continuing education should be available to nurses throughout the province. An increase in funding for this program and for outreach/inservice education courses is desirable. Some form of "protection" for this funding by Hospital Programs would recognize the provincial nature of this service and distinguish it from the funding for clinical programs.

Chapter 4: Standards and Manpower

4.1 Since surgery performed on children is usually carried out in hospitals other than BCCH, most children's surgery will continue to be performed by general and subspecialty surgeons. Some degree of subspecialization is recommended so that expertise in pediatric cases can be maintained and enhanced by a sufficient volume of cases.

4.2 Hospitals that handle more than 1,000 pediatric surgical cases per year should treat elective patients in ASA Categories 1, 2 and 3, plus emergency cases. Hospitals with a pediatric surgical caseload of less than 1,000 cases per year should only treat elective cases in ASA Categories 1 and 2. Except when patient care is compromised, emergency cases in such facilities should be transferred to a suitable facility.

4.3 It is recommended that in hospitals with caseloads of over 1,000 pediatric surgical patients per year, some degree of subspecialization should occur. Those wishing to provide pediatric anaesthesia should have extra training. In hospitals with less than 1,000 pediatric surgical cases per year, it is recommended a designated physician be nominated to oversee requirements for pediatric anaesthesia. This should ensure standards are maintained and upgraded as necessary.

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5. *Child and Youth Long Term Services.*

6. *Child and Adolescent Psychiatric Services Provided by General Hospitals.*

7. *Child and Adolescent Services in General Hospitals.*

8. *Redesigning Relationships.*

Appendices

APPENDIX A

PROVINCIAL PAEDIATRIC HOSPITAL UTILISATION STUDY

TERMS OF REFERENCE

BACKGROUND

There are 590,000 children aged 0-14 years living in British Columbia, and 207,000 aged 15-19,[1] for a total of 797,000 persons. In 15 years time (2006) the numbers are projected to be 716,000 and 257,000 for a total of 973,000. 38% of this total live in the GVRHD.

In the 0-14 age group, hospitals in the GVRHD currently provide just over 50% of all patient days. The BC Children's Hospital alone provides almost 33% of the bed days for the whole province.

The number of approved paediatric beds in the province has decreased by almost 25% to 1060 over the past 5 years. The beds are located in 73 institutions throughout the province.

The number of paediatricians and nurses involved in the care of children is hard to estimate clearly. In the case of the physicians, the definition of a full-time equivalent practitioner is hard to apply to available figures; and in the case of nurses, in the smaller institutions, the work is often mixed between adults and children. The availability of paediatricians is variable in diffferent geographic areas of the province.

OBJECTIVE

To review the present provision of specialty paediatric services in hospitals in British Columbia in order to determine what services/programs need to be delivered centrally or regionally, and which could be delivered close to the child's place of residence, bearing in mind the need for a high quality of care and reasonable economy; and to develop general recommendations for the BC Ministry of Health concerning these services/programs, where they should be located, and the resources required.

TASKS

1. To establish a Steering Committee to provide guidance to the Study. The membership of the Steering Committee will include paediatricians, paediatric nurses and hospital administrators. The representatives will also be drawn from BCCH, from communities adjacent to Vancouver, from the Interior and from the Island. The members will be chosen jointly by the Children's Hospital and the Ministry of Health, and will be selected on the basis of their positions, experience and credibility within their respective fields. The Ministry of Health will also be represented. The Task Force should number no more than 10, with support provided from the Ministry and B.C.'s Children's Hospital.

2. To analyse utilisation data from inpatient, day care, day surgery and outpatient programs to determine what services are being provided at what locations and to children from which regions. Comparative data from other parts of Canada, from the United States and from elsewhere may be reviewed if necessary.

3. To advise the Ministry and the Children's Hospital on how the overall services can usefully be divided into coherent programs that can be matched to the needs of children - e.g. services which would be required by a group of children but not usually administratively grouped together might constitute a single program rather than separate ones for the purposes of this review.

4. To advise the Children's Hospital and the Ministry which of the defined programs can properly be divided into more than one level of care; and to estimate the relative proportions which can be classified as primary, secondary and tertiary.

5. To advise on the appropriate division of programs into inpatient and ambulatory care components, and whether these different parts require to be delivered in the same site or may safely be delivered in different locations.

6. To outline the resources required to enable the safe delivery of each program, in terms of personnel, skills, equipment, supplies and facilities, and the necessary organisational back-up, including information and peer review systems.

7.To recommend alternative means whereby those programs which could be practically, safely and economically delivered at locations other than the B.C.'s Children's Hospital on Oak Street could be developed.

8.To identify linkages needed between the different service levels and providers to ensure continuity of care and to identify support services that B.C.'s Children's Hospital or other agencies could provide to other paediatric programs.

PROPOSED OUTLINE OF WORK PROGRAM

Major tasks to be undertaken during the study would include the following:

A. Demographics

Provincial population data should be reviewed to determine thecurrent and estimated future size and composition of the paediatric population to the year 2000. This information would be compiled provincially and by smaller areas, such as Regional Hospital Districts and/or Local Health Areas.

B. Hospital Utilisation

Provincial hospital data should be reviewed to determine the volume and scope of services provided to the paediatric population of the different communities and regions , both in terms of the incidence - cases per thousand population peryear and the prevalence - days per thousand population peryear, and the site where the services were provided - locally,regionally or in a tertiary care facility [2]. The role played by each hospital in the province in providing these services, and division of the services into type -inpatient, daycare and outpatient, and the level at which the services were provided (see D below) will also be necessary information. Consideration of related issues such as different levels of demand at different times, and review of present hospital designated and approved paediatric beds compared to actual utilisation might also be useful. The utilisation of out-of-province beds by B.C. children may also need review.

C. Health Professional Manpower and Utilisation

It may also be appropriate to review the paediatric-related MSP billing data by region or other factors to review the incidence of M.D. involvement; any relationship between M.D. involvement and hospital utilisation; and the distribution of care between Family Practitioners and Specialists. A review of the distribution of paediatricians and other physicians providing paediatric related services will also be required. Similarily, the distribution of nurses with special training in paediatric care, or with a full-time involvement in this area will be needed, by the type of care - e.g. ICU, Neonatal ICU, nursery, children's units, adolescent services, and child mental health/psychiatric nursing. Other groups involved with the care of children may also require review with respect to particular programs or services, or if an inventory of resources is required.

D. Levels of Paediatric Hospital Services

A major part of the work of the Steering Committee will consist of providing advice as to the most appropriate ways the care provided to children by hospitals can be divided into primary, secondary/regional and tertiary levels. This will require consideration of the differing severity of illness that may be encountered - which will not neatly divide into three levels in many cases - and the differing services required to meet these varying severity levels. These divisions of care levels are necessary to divide the overall utilisation figures into programs or services that can be used to estimate future demand by the population, and the necessary relationship between volume of cases and skill levels on the part of the providers. This in turn will determine the necessary catchment area needed to support particular services and the resources required to support the service itself.

Issues that need to be addressed include:

- the relative roles of the Family Practitioner, Specialist and Subspecialist in the care of children with particular types and severity of illness
- the best division between inpatient, outpatient/daycare and community-based services
- the necessary personnel and services required to back-up the provision of particular lavels and types of care

The views of the health professions, the public and the hospital boards will also be necessary considerations, but the intent is to concentrate on the health-defined needs of the child as seen by health professionals, and to deal with the issue of possibly differing views on the part of the public and others after the standards have been set.

E. Resource Requirements

If the services for children in a hospital setting can be successfully identified in terms of levels of service (severity of illness), by type of service (inpatient, ambulatory, community support from the hospital, public health or other community agencies) and by the support services required to deliver the service, it will be possible to specify clearly the conditions under which such a service could be provided in or by a hospital or other agency - i.e. the resources and skills needed to provide the appropriate standards of care. This will require specification of :

- types of staff, their numbers and the skill levels needed
- equipment needs, including supplies and maintenance
- facilities
- supplies required
- organisational and policy requirements, including outreach support from larger centres, educational programs and communication needs
- appropriate record and information systems

In fulfilling these tasks (6,7 and 8), imaginative consideration of the use of travelling clinics, audio-visual hook-ups and transportation considerations will be required. Options which see hospitals reaching beyond their institutional walls are also likely to require discussion. Finally, alternative solutions may be put forward to suit different geographic and population circumstances, thereby enabling the advice offered to B.C.'s hospitals, Children's and the Ministry to be adapted to suit the many different situations found in the province.

NOTES

[1] The age group 15 - 19 has not usually been regarded as a part of the paediatric population in looking at child health services. Many of the services to this age group are provided through adult facilities and programs. However, since adolescent medicine is emerging as a separate field, and much of the necessary background knowledge derives from traditional paediatric services; and since there are an increasing number of patients with chronic conditions surviving childhood to enter late adolescence and early adulthood with no other source of skilled help than the paediatric services which have supported them through childhood, it is appropriate that this age group be considered in this study at least insofar as the two areas mentioned are concerned.

[2] The division of services into different levels reflects the fact that there are different levels of severity of illness, and not all centers will be able to cope with all patients. However, the division into the three levels of community/ primary, regional/secondary and tertiary is only a simplistic representation of what is, in reality, a much more complicated mix of services. Some types of service may only exist at a single level of complexity - e.g. solid organ transplantation. Others may have many different gradations, depending on personnel, equipment and facilities - e.g. services for the multiply handicapped. The terms are used in the document to indicate that service levels vary, not that they are set at three definable and invariable layers.

ANALYSIS OF GREATER VANCOUVER HOSPITAL REGIONAL DISTRICT SURVEY OF EMERGENCY DEPARTMENT UTILIZATION BY CHILDREN

Prepared for: Ministry of Health - Hospital Programs
British Columbia Children's Hospital

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January, 1990.

1283 Mountain Highway
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January, 10 1990.

Attention: Provincial Pediatric Hospital Utilization Steering Committee

Subject: Greater Vancouver Hospital Regional District Survey of Emergency Department Utilization by Children

I am pleased to submit the report "Analysis of Greater Vancouver Hospital Regional District (G.V.R.H.D.) Survey of Emergency Department Utilization by Children". The report was commissioned to provide background information for the Provincial Pediatric Hospital Utilization Steering Committee in preparation for the planning review of pediatric emergency services.

Phase I involved surveying nine hospitals within the G.V.R.H.D. for the utilization pattern of the emergency department by pediatric patients. Information was obtained from the following sources: emergency room census sheet, admission/discharge/ summary form, hospital computer database and/or patient's medical records.

A total of fifty one patients who reside within the G.V.R.H.D. excluding Vancouver proper were interviewed in B.C.C.H.'s emergency department to determine the reasons why Children's Hospital was chosen as opposed to the local community hospital. Limited data collection were obtained from the medical records and emergency room census sheet on patients elgible but not approached for the survey and patients from the Vancouver proper. Detailed data regarding the distribution of age, sex and medical discharge diagnosis by place of residence on emergency utilization at B.C.C.H. by G.V.R.H.D. (excluding Vancouver proper) residents for the 1989 year were not available when preparing this report. The information has been requested from the Children's Information Systems Department and will submit as an addendum to this report. This data will provide the Committee information for further analysis of the survey results.

I would like to extend my thanks to the emergency room medical, nursing and admitting staff and health records personnel in each of the nine G.V.R.H.D. hospitals surveyed and Children's Hospital for their cooperation and assistance in the surveys.

Yours truly,

Susie Wai

ANALYSIS OF GREATER VANCOUVER HOSPITAL REGIONAL DISTRICT SURVEY OF EMERGENCY DEPARTMENT UTILIZATION BY CHILDREN

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EXECUTIVE SUMMARY

The Provincial Pediatric Hospital Utilization Steering Committee was formed in March 1989 under the auspices of the B.C. Ministry of Health and B.C. Children's Hospital (B.C.C.H.). The Committee's primary role is to analyze the utilization data from inpatient, day care, day surgery and outpatient programs to determine what services are being provided to children at what locations and from which regions.

The annual volume of emergency visits seen at B.C.C.H. has progressively increased from 17,912 in 1985/86 to 26,672 in 1988/89,a 49% increase. The dramatic increase over this four year period causes some concern for Children's Emergency in terms of their ability to cope with its existing manpower and physical resources. It is estimated that one third of the emergency visits come from the G.V.R.H.D. area excluding Vancouver proper.

There were a lack of detailed data readily available on emergency utilization by pediatric patients, aged 0 to 19 years, for the Steering Committee to review. Two surveys were commissioned by the Committee to obtain background information on the current utilization pattern of emergency services within the G.V.R.H.D. The first survey was a retrospective review of nine hospitals within the G.V.R.H.D. to determine: the volume of services provided, distribution by age, medical diagnosis, place of residence, attending physician, physician referral pattern and disposition of patient. The second survey involved interviewing parents and/or patients residing outside Vancouver proper but within the G.V.R.H.D. attending Children's Emergency. The purpose of the survey was to gain insight into reasons why parents bring their children to B.C.C.H. as opposed to their immediate community hospital.

The accompanying report is a summary of the findings from the two surveys. The following highlights the analysis of the survey results on the pediatric patients aged 0 to 14 years and who reside within the G.V.R.H.D. excluding Vancouver proper.

1. The total volume of pediatric patients aged 0 to 14 years represents between 15% to 30% of the total volume of emergency admissions within each of the nine G.V.R.H.D. hospitals surveyed. Estimated annual volumes of emergency visits by pediatric patients aged 0 to 14 years for Burnaby and Royal Columbian Hospitals are greater than 10,000 while Surrey Memorial's estimated volume was comparable to Children's.

2. The most frequent users are children aged 1-4 years who account for 20% of the total volume in the G.V.R.H.D. survey. This age group accounted for 46% of the patients residing within G.V.R.H.D. (excluding Vancouver proper) surveyed at B.C.C.H. In the latter survey, the age distribution pattern of emergency utilization by Vancouver proper parents were found to be similiar. The utilization rate has been calculated based on the total volume for patients aged 0 to 19 years.

3. The most common admission time grouping in the G.V.R.H.D. survey was between the hours of 1600-2159 followed by the 0800-1559 time grouping, 43% and 38% respectively. The reverse finding was noted of patients attending Children's emergency. Fifty-six percent of the patients were admitted betweenthe hours of 0800-1559 with 28% in the 1600-2159 time group. Similiar findings were also noted in the Vancouver proper group.

4. Most of the G.V.R.H.D. hospitals served their immediate local health area that is between 63% to 89% of the total volume of emergency visits. The exceptions were Royal Columbian and Peace Arch District Hospitals who primarily served their neighbouring local health area. This, however was anticipated due to its geographic location.

5. Geographic proximity to Children's Hospital influence the rate of utilization and those residing in Richmond and Burnaby continue to dominate the admissions from outside the Vancouver area (47%). Children's Emergency continues to serve the majority of patients who reside within G.V.R.H.D. (91%).

6. The most frequent medical discharge diagnoses were: respiratory tract infections, accidental injuries due to trauma and lacerations/puncture wounds accounting for 65% of the total cases in the G.V.R.H.D. survey and 57% in the B.C.C.H. survey. Thisfinding demonstrates a needto develop specialized education programs and/or clinics to deal with these relatively minor conditions.

7. The majority of pediatric patients aged 0 to 14 years were discharged home from the emergency departments in both the G.V.R.H.D. and B.C.C.H. surveys, 96% and 84% of the sample group, respectively.

8. The primary reasons for parents bringing their child to B.C.C.H.'s Emergency Department include: child's physician practices in Vancouver and/or has hospital privileges at Children's and the reputation of B.C.C.H. offering specialized services and staff for children only.

I. INTRODUCTION.

There are 797,000 children aged 0-19 years living in British Columbia. Thirty eight percent of this total live in the Greater Vancouver Regional Hospital District (G.V.R.H.D.). Based on the current provincial population data, the estimated pediatric population will increase to 885,072 in 1996 and to 972,925 by 2006 (B.C. Ministry of Economic Development). This increase will generate a greater demand for the development of innovative health care services.

The Provincial Pediatric Hospital Utilization Steering Committee was struck in March 1989 to review the present provision of pediatric services and programs in British Columbia. The Steering Committee membership includes: the Ministry of Health representatives, pediatricians, pediatric nurses, hospital administrators from B.C.C.H., communities adjacent to Vancouver, the Interior and the Island. The Committee's primary role is to analyze the utilization data from inpatient, day care, day surgery and outpatient programs to determine what services are being provided to children at what locations and from which regions. Based on their analysis, the Committee will provide recommendations outlining the required resources which will enable the safe delivery of each program. Manpower issues, equipment, supplies, facilities, and the necessary organizational back-up, including information and peer review will be addressed.

British Columbia Children's Hospital (B.C.C.H.) is the amalgamation of the Health Centre for Children's and Vancouver General Hospital's pediatric unit in 1982. Children's Hospital is the designated provincial pediatric referral and teaching centre. B.C.C.H. is entirely devoted to providing care for pediatric patients from birth to age sixteen but does admit patients up to the age of nineteen on the adolescent psychiatric assessment unit.

The volume of cases seen in B.C.C.H.'s Emergency Department has dramatically increased over the past four years with no indication to date of any slowing down in this trend. The total number of emergency visits has increased annually from 17,912 in 1985/86 to 20,770 in 1986/87, 23,631 in 1987/88 and 26,762 in 1988/89. Within this time period, the number of monthly visits has increased from 1,493 to 2,230, a 49% increase. These statistics have caused some concern for the ability of Children's Emergency to cope with its existing manpower and physical resources. It is estimated that one third of the emergency visits come from the G.V.R.H.D.area excluding Vancouver proper.

For the Steering Committee to determine, which, if any, changes on the part of Children's Hospital and/or hospital closest to the patient's home might lead to greater use of the local community hospital, background information about the current utilization pattern of emergency services within the G.V.R.H.D. is required.

Because detailed data on emergency utilization by pediatric patients aged 0 to 19 years are not readily available, a retrospective survey of nine hospitals within the G.V.R.H.D. has been conducted. The objectives of the G.V.R.H.D. survey were to determine the volume of services provided, distribution by age, medical diagnosis, place of residence, attending physician, physician referral pattern and disposition of patient.

A second survey was conducted concurrently in B.C.C.H.'s Emergency Department to obtain information from parents of/or patients residing outside Vancouver proper but within the G.V.R.H.D. The purpose of this survey was to gain insight into reasons why parents bring their children to B.C.C.H. as opposed to their immediate community hospital. Detailed data similiar to the G.V.R.H.D. survey were also collected. This report is a summary of the findings from the two surveys conducted in October and November 1989.

II. CURRENT UTILIZATION PATTERN OF EMERGENCY SERVICES IN NINE HOSPITALS WITHIN THE GREATER VANCOUVER REGIONAL HOSPITAL DISTRICT.

A. Methodology.

A total of nine G.V.R.H.D. hospitals were surveyed: Burnaby General, Delta, Eagle Ridge, Lion's Gate, Mount St. Joseph, Peace Arch District, Richmond General, Royal Columbian and Surrey Memorial. Vancouver General Hospital, St. Paul's, St. Vincent's and University Hospitals - Shaughnessy and University of British Columbia sites were not included in the survey due to the small, if any, number of pediatric patients admitted to their emergency department. Eight days of data were collected retrospectively from each hospital with the exception of Richmond in which one selected day of data were unavailable. Attempts were made to obtain a representative sample by sampling each day of the week plus a statuatory holiday and selecting a combination of months that had high and low volumes of emergency visits.

Data were collected from a variety of sources which included: the emergency room census sheet,emergency short stay form,admission/ discharge/summary form, computerized patient information system and/or patient's medical record. Information was collected on thefollowing variables: age/sex of patient, admission/discharge date and time, place of residence, reason for admission, medical discharge diagnosis, type of attending physician(s), consultant referral and disposition of patient. Children aged 0 to 19 years were included in the data gathering phase. Since the B.C. Ministry of Health defines pediatric services to include patients aged 0 to 14 years, the age group 15-19 years was excluded in the detailed analysis for this report.

B. Summary of G.V.R.H.D. Survey of Emergency Visits.

1. Total volume of emergency visits by children.

The pediatric population, aged 0 to 19 years, accounted for 22% to 38% of the total volume of emergency visits into the hospitals surveyed. Estimated annual figures for emergency visits by pediatric patients were calculated based on the totals obtained in the G.V.R.H.D. survey and displayed below in Table 1. The estimated total volume for emergency visits in theG.V.R.H.D. area (excluding B.C.C.H.) by patients aged 0 to 19 years is 114,6[illegible]. Interestingly, the estimated annual volume of 29,154 for Surrey Memorial exceeds B.C.C.H.'s 1988/89 volume of 26,762 emergency visits. Table 2, overleaf, shows the volume of emergency visits by pediatric patients aged 0 to 14 years. This latter age group accounted for 15% to 30% of the total volume of emergency visits with an estimated annual volume of 83,736 (excluding B.C.C.H.).

Table 1

VOLUME OF EMERGENCY VISITS BY PEDIATRIC PATIENTS AGED 0 TO 19 YEARS

HOSPITAL NAME	TOTAL PEDIATRICS	TOTAL VISITS	% PEDIATRICS VISITS	EST. ANNUAL PEDIATRICS
Mount St. Joseph	87	400	22	3,939*
Burnaby	319	1206	26	14,354
Eagle Ridge	229	595	38	10,440
Royal Columbian	359	1282	28	16,379
Surrey Memorial	639	1799	36	29,154
Peace Arch	178	724	25	8,121
Delta	145	414	35	6,616
Richmond	288	903	32	13,453**
Lion's Gate	262	1067	25	11,954
TOTAL GVRHD VOLUME (Excludes BCCH)	2,476	8,290		114,549

* Emergency Department closed between 2200-0730.

** Based on 7 days of data.

Table 2

VOLUME OF EMERGENCY VISITS BY PEDIATRIC PATIENTS AGED 0 TO 14 YEARS

HOSPITAL NAME	TOTAL PEDIATRICS	TOTAL VISITS	% PEDIATRICS VISITS	EST. ANNUAL PEDIATRICS
Mount St. Joseph	39	400	15	2,692*
Burnaby	222	1206	18	10,129
Eagle Ridge	177	595	30	8,076
Royal Columbian	245	1282	19	11,178
Surrey Memorial	483	1799	27	22,037
Peace Arch	134	724	19	6,114
Delta	102	414	25	4,654
Richmond	191	803	24	9,959**
Lion's Gate	195	1067	18	8,897
TOTAL GVRHD VOLUME (Excludes BCCH)	1,808	8,290		83,736

* Emergency Department closed between 2300-0730.
** Based on 7 days of data.

2. Age utilization analysis.

Table 3, opposite, illustrates the breakdown of the data into five age categories for analysis: <1, 1-4, 5-9, 10-14 and 15-19 years. Estimated annual volumes for each of the age categories were calculated and are as follows, respectively: 9,073, 32,622, 21,979, 29,062 and 30,915. These figures are gross findings and may not accurately represent the utilization rate by the 15-19 years age group. The volume for this age group is expected to be higher due to their utilization of other hospitals not surveyed. The predominant age groups using the emergency department were 1-4 and 15-19 years which together, comprise over fifty percent of the total emergency visits. Each of the age groups, 5-9 and 10-14 years, accounted for 20% of the total volume. The age group <1 year accounted for less than ten percent of the total emergency visits. These findings are consistent with the age distribution of emergency users at B.C.C.H. for 1988/89.

3. Sex utilization analysis.

The majority of pediatric patients surveyed were males who comprised 53% to 65% of the total volume. The skewed 3:2 proportion of males to females in some of the hospitals, illustrated in Table 4, (opposite), result from sampling errors and therefore not interpreted as a significant finding.

Table 3

AGE DISTRIBUTION OF EMERGENCY USERS IN NINE GVRHD HOSPITALS

HOSPITAL NAME	AGE DISTRIBUTION										
	< 1			1-4			5-9			10-14			15-19			
	N	%	TOTAL	N	%	TOTAL	N	%	TOTAL	N	%	TOTAL	N	%	TOTAL	N TOTAL
Mount St. Joseph	2	2		20	23		18	21		19	22		28	32		87
Burnaby	24	8		97	30		55	17		46	15		97	30		319
Eagle Ridge	16	7		72	31		45	20		44	19		52	23		229
Royal Columbian	32	9		110	30		53	15		50	14		114	32		359
Surrey Memorial	62	10		177	28		122	19		122	19		156	24		639
Peace Arch	14	8		44	25		36	20		40	22		44	25		178
Delta	10	7		40	28		30	21		22	15		43	29		145
Richmond	20	8		70	27		61	24		40	15		67	26		258*
Lion's Gate	16	4		75	29		53	20		51	19		67	26		262
TOTAL GVRHD VOLUME	196	8		705	28		473	19		434	19		650	27		2,476
ESTIMATED ANNUAL GVRHD VOLUME (Excludes BCCH)	9,073			32,622			21,979			20,062			30,915			114,649

* Based on 7 days of data.

Table 4

DISTRIBUTION OF EMERGENCY VISITS BY SEX
(AGES 0-14 YEARS)

HOSPITAL NAME	SEX						
	MALE			FEMALE			
	N	%	TOTAL	N	%	TOTAL	N TOTALS
Mount St. Joseph	33	56		26	44		59
Burnaby	126	57		96	43		222
Eagle Ridge	105	59		72	41		177
Royal Columbian	137	55		108	44		245
Surrey Memorial	277	57		205	43		539
Peace Arch	77	57		57	43		134
Delta	61	60		41	40		102
Richmond	112	60		79	40		191*
Lion's Gate	124	64		71	36		195
TOTAL GVRHD VOLUME	1,052	58		756	42		1,808
ESTIMATED ANNUAL GVRHD VOLUME (Excludes BCCH)	48,720			35,008			83,736

* Based on 7 days of data.

4. Admission time analysis.

The patient's admission time into the emergency department was categorized into three groups: 0800-1559, 1600-2159 and 2200-0759. There was consensus amongst emengency room physicians and nurses in the various hospitals surveyed that these groupings represented the "natural time lines" for admissions. According to Table 5, opposite, 43% of the total volume of emergency visits were admitted in the time frame between 1600 and 2159, a six hour period. This finding suggests the increase in visits during this time period coincides with children returning home from school and/or after work hours which is a convenient time for the parent to bring his/her child into emergency. The other time groupings, 0800-1559 and 2200-0759, accounted for 38% and 19% of the total volume respectively.

5. Residence utilization analysis.

Data were collected on the emergency patient's permanent place of residence and categorized according to the designated local school district for their area. Table 6, opposite, illustrates the geographic distribution of patients by the following categories: immediate local health area, neighbouring local health area, other areas within G.V.R.H.D. and areas outside G.V.R.H.D. The immediate local health area refers to the primary catchment area while a neighbouring local health area is within close proximity of the hospital surveyed. For example, 22% of emergency visits at Royal Columbian were pediatric patients residing in New Westminister which was categorized as the immediate local health area. Because of its central location, 67% of the emergency patients came from neighbouring local health areas including Surrey, Burnaby, and the Coquitlam area. The other areas within G.V.R.H.D. include White Rock, Delta, Vancouver and North Vancouver.

The data indicate the majority of patients, ranging from 91% to 89%, utilized their local emergency department at the following hospitals: Delta, Eagle Ridge, Lion's Gate, Mount St. Joseph, Richmond General and Surrey Memorial. Due to the close proximity of areas in South Surrey to Peace Arch District Hospital, it was not surprising to find that 66% of the patients had Surrey addresses.

Table 5

DISTRIBUTION OF EMERGENCY VISITS BY ADMISSION TIME GROUPINS
(AGES 0-14 YEARS)

HOSPITAL NAME	ADMISSION TIME GROUPINGS						
	0800-1559		1600-2359		2200-0759		
	N	% TOTAL	N	% TOTAL	N	% TOTAL	N TOTAL
Mount St. Joseph	25	42	30	51	4	7	59*
Burnaby	77	35	87	39	58	26	222
Eagle Ridge	55	31	95	54	27	15	177
Royal Columbian	90	37	110	45	45	18	245
Surrey Memorial	195	40	192	40	96	20	483
Peace Arch	61	45	56	42	17	13	134
Delta	36	35	54	53	21	15	102
Richmond	80	42	89	47	22	11	191**
Lion's Gate	76	39	73	37	46	24	195
TOTAL GVRHD VOLUME	695	38	786	43	327	19	1,808
ESTIMATED ANNUAL GVRHD VOLUME (Excludes BCCH)	22,231		36,442		15,063		33,736

* Emergency Department closed between 2300-0730.
** Based on 7 days of data.

Table 6

GEOGRAPHIC DISTRIBUTION OF EMERGENCY VISITS
(AGED 0-14 YEARS)

HOSPITAL NAME	Immediate Local Health Area		Neigbouring Local Health Area		Other Areas Within G.V.R.H.D.		Areas Outside G.V.R.H.D.		TOTALS
	N	% TOTAL	N	% TOTAL	N	% TOTAL	N	% TOTAL	
Mount St. Joseph	50	85	0		3	5	6	10	59
Burnaby	140	63	56	26	23	10	3	1	222
Eagle Ridge	157	89	7	4	7	4	6	3	177
Royal Columbian	55	22	162	67	20	8	8	3	245
Surrey Memorial	394	83	5	1	62	13	16	3	477*
Peace Arch	40	30	88	66	2	1	4	3	134
Delta	83	81	9	8	7	7	4	4	102
Richmond	157	82	9	5	16	8	9	5	191**
Lion's Gate	173	89	0		7	4	15	9	173
TOTAL GVRHD VOLUME	1,249		335		147		71		1,802

* Data unavailable on 6 patients
** Based on 7 days of data

6. Distribution of medical discharge diagnosis.

In cases where multiple diagnoses were noted, only the primary medical problem was identified. The medical discharge diagnosis data were grouped into seventeen categories and listed in Table 7, opposite.

The most frequent diagnoses for emergency users in all nine G.V.R.H.D. hospitals wererespiratory tract infections, accidental injuries caused by trauma and lacerations/puncture wounds which in total comprised 1,174/1,808 or 65% of all cases.

The frequency of respiratory tract infections ranged from 23%, 17/59 (Mount St.Joseph) to 38%, 39/102 (Delta) of the medical conditions seen in the emergency department. Otitis media was the most common respiratory condition accounting for 30% to 62%. Other respiratory infections included: asthma, bronchitis, bronchiolitis, croup, pharyngitis, tonsilitis, influenza and uncomplicated pneumonia.

Accidental injuries caused by falls, sports injuries, motor vehicle accidents or other domestic accidents accounted for 20%, 97/483 (Surrey) to 29%, 56/192 (Richmond) of all cases within the hospitals surveyed. This category includes the following medical discharge diagnosis: abrasion, contusion, closed head injury, dislocation, fracture, subluxation and soft tissue injury.

Lacerations and puncture wounds represented between 10%, 10/102 (Delta) to 15%, 33/222 (Burnaby) of the cases seen in emergency. Data on cases requiring sutures were not collected and would have been useful information in determining which of these cases was appropiate for the outpatient department.

General pain symptoms, gastro-intestinal disorders and other non-emergent conditions comprised 5%, 6% and 7%, respectively, of the total volume. Examples of non-emergent conditions included: constipation, epistaxis, animal/insect bites, urinary tract infection and general symptoms unrelated to other listed categories in Table 7. Each of the remaining medical discharge diagnoses accounted for less than five percent of the total volume of cases.

7. Distribution of emergency visits by attending physician.

Data on the attending physician were not readily available for Royal Columbian and Eagle Ridge Hospitals. The physician's name listed on the admission/discharge/transfer summaries usually identified the patient'sgeneral practitioner and thereforedid not necessarily reflect who attended to the patient. Consequently, these data were not obtained because of the laborious process required for chart retrieval and deciphering of physician's

Table 7

DISTRIBUTION OF EMERGENCY VISITS BY MEDICAL DISCHARGE DIAGNOSIS

MEDICAL DISCHARGE DIAGNOSIS	HOSPITAL NAME											
	Mount St. Joseph	Burnaby	Eagle Ridge	Royal Columbian	Surrey Memorial	Peace Arch	Delta	Richmond	Lion's Gate	TOTAL GVRHD VOLUME	% TOTAL	ESTIMATED ANNUAL GVRHD VOLUME (Excludes BCCH)
Respiratory Infections	17	68	40	57	124	45	39	53	63	505	28	23386
Accidental Injuries - Trauma	12	52	50	64	97	34	26	56	50	441	24	20486
Gastro-Intestinal Disorders	2	19	5	20	28	6	4	12	11	107	6	4960
Lacerations/Puncture Wounds	11	33	22	24	63	14	10	21	30	228	13	10539
Poison Ingestion	0	1	1	3	3	1	0	2	2	13	.7	606
Skin Disorders	2	7	3	8	8	3	1	5	2	39	2.1	1812
Pain Syptoms	6	10	13	11	20	5	5	7	7	89	5	4136
Allergic Reactions	2	6	3	3	8	3	1	2	3	31	2	1427
Emergent/Life Threatening	0	2	1	5	7	0	0	1	0	16	.9	736
1° or 2° Burns	0	3	0	2	5	0	1	4	4	19	1	890
Eye Disorders	1	7	3	5	4	1	4	1	1	27	1.5	1238
Removal of Foreign Body	0	3	7	1	6	1	1	3	3	25	1.4	1160
Infectious Diseases	0	1	0	3	8	1	1	4	1	19	1	893
Other Non-Emergent Conditions	2	9	19	24	47	3	6	11	9	128	7	5911
Pr. Existing Medical Condition	0	0	1	5	5	0	0	1	3	15	.8	691
Booked Assessment or Treatment	1	2	3	3	28	12	2	3	4	59	3	2711
Unknown	3	0	2	6	22	4	1	6	3	47	2.6	2184
TOTALS	59	222	177	245	484	134	102	192	195	1808	100	83736

handwritten signature. However, the Emergency Medical Director for Fraser Burrard Hospital Society indicates that approximately 92% of patients are seen by an emergency room physician without further referral.

Classification of the physicians reflected his/her hospital privilege status and are as follows: emergency room physician (ERP), general practitioner (GP), pediatrician, orthopedic, general medicine, general surgery and others specialties. The emergency room physician in this survey was defined as one who is employed by the hospital to work primarily in the emergency department. In retrospect, classification of the ERP based on his/her relevant training would have been more definitive. The proposed classification would reflect his/her level of training and includes: a formal four year emergency room residency training, a GP with a two year internship in emergency or GP without additional training.

Thehospitals with full-time ERPs includes: Burnaby, Delta, Lion's Gate, Mount St. Joseph and Surrey Memorial. According to Table 8, opposite, a consistent pattern emerges for these hospitals. The ERPs primarily attend the majority of cases, between 61% to 82%. In two of the hospitals, Peace Arch and Richmond General, where joint responsibility for coverage of the emergency department is between the ERP and GP, the majority of cases are primarily attended to by the latter. The data presented in Table 8 only includes the physician who initially assessed the patient.

Table 9, opposite, provides a breakdown of consultants by specialty. With the exception of Lion's Gate and Peace Arch, less than six percent of the patients within the hospitals surveyed were primarily attended by or referred to a consultant. Approximately eighteen percent of the emergency patients (aged 0 to 14 yeas) at Lion's Gate were assessed by a consultant. Within this group, 26/30 patients were initially seen by a pediatrician. In the majority of booked orthopaedic cases at Surrey Memorial and Peace Arch, the orthopaedic consultant was the primary attending physician. The data does not demonstrate a significant referral pattern between the ERP or GP to consultant.

8. Distribution by disposition of patient.

As Table 10 on page 12 illustrates, 91% to 100% of all pediatric patients were discharged home from the emergency room. Less than ten percent of the total volume was admitted to the pediatric unit while transfers to other primary or secondary level care G.V.R.H.D. hospitals accounted for less than one percent. Only five patients in the total sample were transferred to Children's Hospital.

Table 8

DISTRIBUTION OF EMERGENCY VISITS BY ATTENDING PHYSICIAN
(AGES 0-14 YEARS)

HOSPITAL NAME	TYPE OF ATTENDING PHYSICIAN					
	Emergency Room Physician		General Practitioner		Consultant	
	N	% TOTAL	N	% TOTAL	N	% TOTAL
Mount St. Joseph	34	58	19	32	6	10
Burnaby	203	91.4	18	7	2	.6
Eagle Ridge	N/A*					
Royal Columbian	N/A*					
Surrey Memorial	444	92	22	5	17	3
Peace Arch	17	13	112	83	5	4
Delta	73	72	29	28	0	
Richmond	57	35	116	61	8	4
Lion's Gate	118	61	51	26	25	13

* Patient's family physician identified on ADT summary and does not indicate the attending physician s)

Table 9

DISTRIBUTION BY MEDICAL CONSULTANTS
(AGES 0-14 YEARS)

HOSPITAL NAME	TYPE OF MEDICAL CONSULTANT						
	Pediatrician	Orthopaedic	General Surgeon	Others	TOTALS	TOTAL VOLUME	% TOTAL VOLUME
Mount St. Joseph	3	0	0	0	3	59	5
Burnaby	5	0	3	0	8	22	4
Eagle Ridge	N/A					177	
Royal Columbian	N/A					245	
Surrey Memorial	13	16	0	0	29	483	6
Peace Arch	2	11	1	0	15	134	11
Delta	0	0	0	1	1	122	1
Richmond	1	10	0	0	11	191	6
Lion's Gate	30	1	5	0	36	196	18
TOTALS	55	38	9	1	103	1678	

Table 10

DISTRIBUTION BY DISPOSTION OF PATIENT
(AGES 0-14 YEARS)

HOSPITAL NAME	DISPOSITION OF PATIENT							
	Discharged Home		Referred to	Admitted to	Transferred to	Transferred	Expired	TOTALS
	N	% Total	GP's Office	Pediatric Unit	other 1 or 2 *	to BCCH		
Mount St. Joseph	56	95	0	2	0	1	0	59
Burnaby	218	98	0	4	0	0	0	222
Eagle Ridge	176	99	0	N/A**	1	0	0	177
Royal Columbian	223	91	0	21	0	0	1	245
Surrey Memorial	465	96	1	16	0	1	0	483
Peace Arch	127	95	0	4	1	2	0	134
Delta	102	100	0	N/A**	0	0	0	102
Richmond	188	98	2	0	0	1	0	191***
Lion's Gate	188	96	1	6	0	0	0	195
TOTAL GVRHD VOLUME	1,743	96	4	53	2	5	1	1,808

* Refers to other local hospitals designated as primary or secondary level of care

** No pediatric unit in hospitals

*** Based on 7 days of data

III. CURRENT UTILIZATION OF CHILDREN'S EMERGENCY DEPARTMENT BY RESIDENTS WITHIN G.V.R.H.D. BUT OUTSIDE VANCOUVER PROPER.

A. Methodology.

A second concurrent survey was conducted to gain insight into reasons why parents who reside within the G.V.R.H.D. (excluding Vancouver proper) chose to bring their children to B.C.C.H.'s emergency department as opposed to their immediate community hospital.

Telephone survey, mail in patient questionnaire and face to face interviews were considered as possible survey methods. The latter was selected as the most time effective method for gathering data and allowed the researcher to probe or seek clarification of responses received. The process entailed the emergency room clerk to identify the eligible patients based on their permanent place of residence and flag their chart for the nurse. The emergency room nurse was responsible for determining the appropiateness and obtaining consent from the parentand/or patient to be interviewed by the researcher.

A questionnaire and patient information sheet was developed to facilitate the interviewing process (Appendix A). An epidemiologist from the University of British Columbia and a nurse consultant who worked on the 1985 Grace Hospital Over-Utilization Study were consulted to assist with the structuring of questions to minimize potential biases. Both forms were pre-tested on four patients to assess the validity of the questions asked.

A total of 47 patients were interviewed over six randomly selected days in late November and early December 1989. A combination of time periods between the hours of 1200 and 2200 were sampled.

Data were also collected on 76 emergency patients admitted on the survey days but who were not approached because they were transferred in by ambulance, had arrived outside the survey time periods or resided outside the G.V.R.H.D. area. The data were obtained from the patient's medical record chart.

A total of 337 patients from the Vancouver proper were admitted during the six day survey period. Limited data on the Vancouver patients were obtained from the emergency census sheet. The total sample size is 460.

B. Summary of B.C.C.H. Survey of Emergency Patients Residing Within GVRHD Excluding Vancouver Proper.

1. Total volume of emergency visits by G.V.R.H.D. residents excluding Vancouver Proper.

Patients residing in G.V.R.H.D., excluding Vancouver, accounted for 24.3% (112/460) of the total volume of emergency visits while only 2.4% (11/460) had residences outside the G.V.R.H.D. Vancouver area residents continue to dominate the share of emergency visits at B.C.C.H., 73.3% (337/460). The survey findings suggests that Children's emergency continues to primarily serve patients from the G.V.R.H.D. area, 97.6% (447/460). The utilization rate may be skewed because of the limited number of sampling days. Actual statistics from previous years indicate that 91% of the emergency visits to B.C.C.H. are by patients from the G.V.R.H.D. area.

2. Age by place of residence utilization analysis.

Table 11, opposite, displays the age distribution of emergency users by place of residence within and outside the G.V.R.H.D. area. Upon reviewing the survey sample of those patients residing within G.V.R.H.D. excluding Vancouver proper, the age group 1-4 years was the dominate category accounting for 46% (51/112) followed by the 5-9 years age group, 22% (25/112). The utilization pattern was consistent when compared with the total volume of emergency visits to Children's. The 1-4 years age group represented 44% (203/460) while the age group 5-9 years accounted for 24% (112/460) of the total volume. The data from each of the G.V.R.H.D. areas surveyed (Table 3) also demonstrates a similiar age distribution pattern.

The overall pattern of emergency utilization by age distribution at Children's is consistent with the findings from the survey of nine G.V.R.H.D. hospitals. The 15-19 years age group is the exception which comprised less than two percent as compared to the 27% from the G.V.R.H.D. survey. This age group is less likely to utilize B.C.C.H. which is consistent with previous trends noted at B.C.C.H.

The data in Table 11 suggests a correlation between the proximity of B.C.C.H. from place of residence to rate of emergency utilization. Patients from Richmond and Burnaby comprised 46% of the total volume surveyed. The utilization rate deceases proportionately and inversely to the distance from Children's.

The remaining analysis on sex, admission time, medical discharge diagnosis and disposition status excludes the age 15-19 years age group and those residing outside G.V.R.H.D. which in total represent 14 patients.

Table 11

AGE DISTRIBUTION OF EMERGENCY USERS BY PLACE OF RESIDENCE

PLACE OF RESIDENCE	AGE DISTRIBUTION BY YEARS						
	<1	1-4	5-9	10-14	15-19	RESIDENCE TOTALS	ACTUAL GVRHD ANNUAL TOTALS*
Richmond	0	18	12	5	1	36	1647
Delta/Ladner	3	7	2	3	0	15	458
Burnaby	4	11	3	3	0	21	1293
Langley	0	2	2	0	0	4	N/A
Surrey	4	3	1	1	2	11	741
New Westminster	0	1	0	0	0	1	278
Coquitlam	4	4	1	1	0	10	419
North Vancouver	2	4	3	0	0	9	330
West Vancouver	1	1	1	1	0	4	153
White Rock	1	0	0	0	0	1	N/A
Total G.V.R.H.D. (excluding Vancouver proper)	19	51	25	14	3	112	
Vancouver Proper	56	151	81	38	11	337	15294
TOTAL G.V.R.H.D.	75	202	106	52	14	449	20554
Outside G.V.R.H.D.	2	1	5	2	0	11	82**
TOTAL EMERGENCY VISITS (B.C.C.H.)	77	203	112	54	14	460	*

* 1988/89 GVRHD statistics provided by Dr. Alan Thompson
Discreptancy with previously stated volume of 26,782 related to data unavailable on areas outside GVRHD and excludes volume from short stay observation unit.

** Includes Abbotsford and Maple Ridge.

3. Sex utilization analysis.

Fifty-nine percent (64/109) of the patients were male while females accounted for 41% (45/109) of the sample group of patients residing within the G.V.R.H.D. excluding Vancouver proper. This was a similiar finding to the G.V.R.H.D. survey. However, when compared to the total volume of B.C.C.H.'s emergency visits by patients aged 0 to 14 years, the ratio of males to females was almost equal. Males accounted for 51% (228/446) while females represented 49% (218/446).

4. Admission time analysis.

Table 12, below, displays the admission time groupings by place of residence. Approximately 56% (61/109) of the patients attended B.C.C.H.'s emergency department between the hours of 0800-1559 while 28% (30/109) were admitted between 1600-2159 which is the reverse in frequency when compared to the admission time pattern in the G.V.R.H.D. survey. Upon examining the admission times more closely in the first group, the majority of patients attended the emergency between 1130-1400. A possible explanation for this finding is parents wishing to avoid peak rush hour traffic when travelling to and from Children's.

The above finding is similiar to the overall admission time pattern when compared to the total volume of emergency visits at Children's during the survey period. Forty-three percent (191/446) of the patients came between 0800-1559 as compared to 34% (151/446) between the hours of 1600-2159.

Table 12

DISTRIBUTION OF EMERGENCY VISITS BY ADMISSION TIME GROUPING (BCCH)
(AGES 0-14 YEARS)

PLACE OF RESIDENCE	ADMISSION TIME GROUPINGS			
	0800-1559	1600-2159	2200-0759	RESIDENCE TOTALS
G.V.R.H.D. (Excluding *)	61	30	18	106
Vancouver Proper*	123	117	86	326
Outside G.V.R.H.D.	7	4	0	11
TOTAL VOLUME	191	151	104	446

5. Medical discharge diagnosis by place of residence analysis.

Table 13, overleaf, displays the medical discharge diagnosis by the patient's place of residence. The categorization of the medical discharge diagnosis was consistent with those defined within the G.V.R.H.D. survey. Respiratory tract infections represented the most frequent diagnosis for patients admitted to Children's emergency, 40% of the total volume. Within this category, 32% (14/44) of the patients were diagnosed with otitis media.

Accidental injuries caused by trauma and gastro-intestinal disorders comprised 26% of the cases. Examples of non-emergent conditions are constipation, urinary tract infection, constipation, headaches and balantis. The pre-existing medical conditions include diabetes, pyloric tumor, leukemia, cystic fibrosis, kidney transplant, spina bifida, arterial venous malformation (shunt failure) and reapplication of cast for clubfoot.

Each of the remaining diagnoses represent less than 7% of the cases. The distribution of the medical discharge diagnosis is consistent with the finding in the G.V.R.H.D. survey.

The data demonstrates that parents are willing to travel the distance to Children's emergency for their children who present with relatively minor conditions. The relative numbers for less common medical diagnoses of patients residing beyond the neighbouring local health areas of Richmond and Burnaby are too small to make any inferences with respect to distance from B.C.C.H. and severity of medical conditions. In the majority of cases (73%), parents indicated the nearest community hospital was within ten minutes driving distance. Within this group, the average travelling time to Children's was thirty minutes. Those parents who spent greater than an hour in travelling time one way indicated that it was well worth the drive.

6. Distribution by disposition of patient.

Within the group surveyed, 84% (92/109) were discharged home and 16% (17/109) of the patients were admitted. The breakdown of the inpatient units utilized are as follows: Neurology (2), Orthopaedic/Surgery (10), Adolescent Assessment (1) and Cardiology (4).

Table 13

DISTRIBUTION OF MEDICAL DISCHARGE DIAGNOSIS BY PLACE OFRESIDENCE (BCCH)
(AGED 0-14 YEARS)

MEDICAL DISCHARGE DIAGNOSIS	PLACE OF RESIDENCE							DIAGNOSIS TOTALS	% TOTAL DIAGNOSIS
	Richmond	Delta/ Ladner	Burnaby	Surrey/ Langley	New West./ Coquitlam	North/West Vancouver	White Rock		
Respiratory Infections	13	6	9	5	7	4	0	44	40
Accidental Injuries - Trauma	6	0	2	4	0	2	0	14	13
Gastro-Intestinal Disorders	5	4	2	1	2	0	0	14	13
Lacerations/Puncture Wounds	1	1	2	0	0	0	0	4	4
Poison Ingestion	0	1	0	0	0	0	0	1	1
Skin Disorders	1	1	0	1	0	1	0	4	4
Pre-Existing Medical Condition	1	2	3	1	0	2	0	8	7
Other Non-Emergent Conditions	6	1	2	1	2	2	1	17	15
Unknown	0	0	1	0	0	2	0	3	3
RESIDENCE TOTALS	35	15	21	13	11	13	1	109	
% RESIDENCE TOTAL	32	14	19	12	10	12	1		

C. Summary of Reasons Identified For Choosing B.C.C.H. Emergency.

Discussion of the data on parents and/or patients interviewed includes the four pre-test patients for a total of 51.
In general, the interviewing process was uneventful and the parents and/or patients were very receptive and responsive to the questions asked by the researcher. All but one parent interviewed provided very positive feedback about the care received by both the medical and nursing emergency staff and the non-threatening physical environment inemergency set up for children. An example of the latter include the availability of toys and colorful murals on the walls. The parents evaluated the overall care as being good to excellent relating to the following reasons: the short waiting time to be assessed, efficient management of their child's medical problem, patience and caring attitude of staff to deal with children.

Of those interviewed, 27/51 indicated it was their child's first visit to Children's emergency and within this group, 11 had utilized an emergency department closer to their place of residence within the past year. The distribution of the number of emergency visits made to Children's within the past year (excluding the survey day) by frequent users are as follows: 1-3 (9), 4-6 (10), 7-9 (1) and >10 (2).

The majority of parents had called the child's primary physician prior to their emergency visit (61% - 31/51). Within this group, 17 were referred by the general practitioner while 12 were requested by their pediatrician to meet them at Children's emergency for assessment. The remaining survey sample, 20/51, cited the following reasons why they did not notify the child's physician: would have been sent to emergency anyways, did not think about it, had been at the doctor's office with the same condition within a week prior to admission, and the child's physician unavailable after normal working hours or week-ends.

Eighty-five percent of the parents claimed they had not considered other hospitals for this emergency visit. Eight parents attributed the lackof confidence in their local community hospitals to either a personal or a friend's bad experience. The explanations provided relate to the lengthy waiting time to be assessed, inability for staff to deal with a crying baby and inaccurate diagnosis resultingin additional complications for the child. Most parents perceived their local community hospitals as serving adults only and some indicated they did not want their children in the same emergency room with adults. However, most felt they would use their local hospital for life-threatening situations that requires immediate assessment but would want their child transferred to Children's if inpatient admission was necessary. A few contended that they would utilize their local community hospital if their child's physician's practice was in

that area.

Multiple reasons as to why parents chose to bring their child to Children's emergency as opposed to the local community hospital were elicited and summarized as follows. The primary reasons included: the child's physician practices in Vancouver and/or with hospital privileges at Children's (44/51) and its reputation of offering specialty services and staff for children only (41/51). Additional reasons cited include: child born at Grace Hospital, already known at Children's from previous admissions or pre-existing medical condition, inability to obtain an appointment at the GP's office and recently relocated outside of Vancouver proper.

IV. SUMMARY OF FINDINGS AND CONCLUSION.

The gross findings from the survey of nine G.V.R.H.D. hospitals and the survey conducted at B.C.C.H.'s emergency department hopes to provide the Steering Committee sufficient background information regarding the utilization of emergency services by pediatric patients. The data contained in this report are limited for any comparative analysis to identify trending patternsover time due to the lack of readily available historical information.

The following provides a summary of the significant findings discussed in this report with analysis focussed on patients aged 0 to 14 years and who reside within the G.V.R.H.D. excluding Vancouver proper:

1. The total volume of pediatric patients aged 0 to 14 years represents between 15% to 30% of the total volume of emergency admissions within each of the nine G.V.R.H.D. hospitals surveyed. Estimated annual volumes of emergency visits by pediatric patients aged 0 to 14 years for Burnaby and Royal Columbian Hospitals are greater than 10,000 while Surrey Memorial's estimated volume was comparable to Children's.

2. The most frequent users are children aged 1-4 years who account for 28% of the total volume in the G.V.R.H.D. survey. This age group accounted for 46% of the patients residing within G.V.R.H.D. (excluding Vancouver proper) surveyed at B.C.C.H. In the latter survey, the age distribution pattern of emergency utilization by Vancouver proper parents were found to be similiar. The utilization rate has been calculated based on the total volume for patients aged 0 to 19 years.

3. The most common admission time grouping in the G.V.R.H.D. survey was between the hours of 1600-2159 followed by the 0800-1559 time grouping, 43% and 38% respectively. The reverse finding was noted of patients attending Children's emergency. Fifty-six percent of the patients were admitted between the hours of 0800-1559 with28% in the 1600-2159 time group. Similiar findings were also noted in the Vancouver proper group.

4. Most of the G.V.R.H.D. hospitals served their immediate local health area that is between 63% to 89% of the total volume of emergency visits. The exceptions were Royal Columbian and Peace Arch District Hospitals who primarily served their neighbouring local health area. This, however was anticipated due to its geographic location.

5. Geographic proximity to Children's Hospital influence the rate of utilization and those residing in Richmond and Burnaby continue to dominate the admissions from outside the Vancouver area (47%). Children's Emergency continues to admit the majority of patients residing within G.V.R.H.D. (91%).

6. The most frequent medical discharge diagnoses were: respiratory tract infections, accidental injuries due to trauma and lacerations/puncture wounds accounting for 65% of the total cases in the G.V.R.H.D. survey and 57% in the B.C.C.H. survey. This finding demonstrates a need to develop specialized education programs and/or clinics to deal with these relatively minor conditions.

7. The majority of pediatric patients aged 0 to 14 years were discharged home from the emergency departments in both the G.V.R.H.D. and B.C.C.H. surveys, 96% and 84% of the sample group, respectively.

8. The primary reasons for parents bringing their child to B.C.C.H.'s Emergency Department include: child's physician practices in Vancouver and/or has hospital privileges at Children's and the reputation of B.C.C.H. offering specialized services and staff for children only.

In summary, the general findings on the most frequent medical discharge diagnoses and admission time groupings, in both the G.V.R.H.D. and B.C.C.H.'s survey, suggest that parents chose to bring their child to the emergency department as opposed to the physician's office for reasons of convenience. The appropiateness of emergency admissions is not a new issue and recommend the Steering Committee to provide guidelines in the development of educational programs aimed at parents, patients and health professionals and alternatives to emergency room care.

APPENDIX A

Patient Interview Tool

Patient Information Sheet

British Columbia's
Children's Hospital

INFORMATION FOR PARENTS AND/OR PATIENTS

The B.C. Children's Hospital is committed to providing quality patient care and services to meet the needs of the surrounding community. By taking on a leadership role, Children's Hospital is also committed to assisting other community hospitals to develop programs and improve their delivery of services for children in the hospital setting. In order to identify the required services and the most appropiate setting for provision of care, we would like to collect information from patients who reside within the Vancouver Lower Mainland but outside the immediate Vancouver area.

We would appreciate your voluntary participation in a survey interview by one of our staff members. Your input would be useful and valuable for us to evaluate the present and for the planning of future health care services to best meet the needs of children. This information will assist us to determine the resources in terms of personnel, skills, equipment, supplies and facilities required to provide safe delivery of health care programs for children.

All the information that you provide us will be kept confidential and not linked to you personally. Thank you for your consideration of the survey interview.

4480 Oak Street, Vancouver, B.C. V6H 3V4 Phone: (604) 875-2345

PATIENT INTERVIEW TOOL

Section A: (Complete from emergency log book or short stay form)

1. Date/Time of Admission: _____
2. Hospital Number: _____
3. MSP Number: _____
4. Name of Patient: _____
5. Age of Patient: _____
6. Sex of Patient: _____ Male _____ Female
7. Postal Code of Residence: _____
8. Patient's mode of admission: _____
9. Patient accompanied by: _____
10. Admitting complaints by patient: _____
_____
11. Treatment/Services provided at BCCH: _____
_____
12. Attending physician(s):
    - ____ Emergency room physician
    - ____ Pediatric Resident
    - ____ Family Practice Intern
    - ____ Fellow
    - ____ Family physician
    - ____ Pediatrician
    - ____ Other specialists - _____
13. Medical diagnosis on discharge: _____
_____
14. "Disposition" of patient:
_____

Section B:

1. Did the patient agree to participate in the survey?

____ Yes (Complete Section C)
OR ____ Refused

_____
(Reason)
OR ____ Not approached

_____
(Reason)

Rev. 3/11/89

PATIENT INTERVIEW TOOL

Section C: (Patient interview)

Respondent: _____ Relation to Patient: _____

1. Is this your child's first visit to Children's Hospital?

   ___ Yes ___ No

   If no, please indicate the number of visits made in the past year:
   ____ 1-3
   ____ 4-6
   ____ 7-9
   ____ >10

2. Has your child visited any emergency departments other than Children's?
   ___ Yes ___ No

   If yes, please indicate the hospital name and number of visits made in the past year.

   _____

3. Who usually provides the medical care for your child? (Identify type of physician.)

   _____

   _____

4. Is your child being seen by a Specialist? ___ Yes ___ No

5. Where does your child's physician(s) practice? (Identify by municipality)

   Personal Office: _____

   Clinic: _____

   Hospital: _____

6. Is your child's physician available for emergencies?
   ___ Yes ___ No

   If no, is there an on call service?
   ___ Yes ___ No

   If yes, did you call him or her?
   ___ Yes ___ No

   If yes, what was his or her advice?

   _____

   If no, was there any reason why the physician was not contacted.

   _____

Section C: (con'd)

7. Was there a more convenient emergency department available to you? ___ Yes ___ No

8. Where is the nearest hospital from your place of residence?

   Name: _____

   Distance from residence (travelling time) _____

9. What was the travelling time from your home to BCCH? _____

10. If you came to Children's Hospital, preferentially by choice, please explain why.

    _____

    _____

    _____

11. Has any other immediate family members made a visit to an emergency department in the past year?
    ___ Yes ____ No

    If yes, please identify the hospital name and number of visits.

    _____

    _____

12. What changes could occur in your local hospital emergency department that would encourage you to attend, preferentially. Describe briefly.

    _____

    _____

    _____

13. Additional comments.

    _____

    _____

    _____

    _____

Letter to
All Hospitals

APPENDIX C1

Dear _____

The B.C. Childrens Hospital and the Ministry of Health have been engaged in a study of the utilisation by children of hospitals in the province. A copy of the Terms of Reference and of the membership of the Committee are attached.

The Steering Committee of the Provincial Pediatric Hospital Utilisation Study has determined that it would be useful to collect information on the services and facilities presently available for the treatment of children in hospitals in the province, and to seek the opinion of hospitals on the services currently available at the Childrens Hospital. A questionnaire has been drawn up, covering the items of interest to the committee.

The Committee hopes that you are willing to help us by completing the questionnaire as completely as possible. The replies will be tabulated and compiled into a report for discussion by the Committee. It is intended to send copies of the survey results to the hospitals contributing to the report.

In some hospitals, a number of individuals will contribute to the completion of the questionnaire, and the answers may take a little discussion to ensure they are comprehensive. A reply by 24th November is requested to enable the results to be completed and analysed before Christmas.

If you have any questions concerning this, or do not wish to take part, please call me at 387-4557.

Yours sincerely

Alan D. Thomson
Medical Consultant
Chairman of the Steering Committee

c.c Committee Members
b.c.c.Team Leaders

PROVINCIAL PAEDIATRIC HOSPITAL UTILISATION STUDY

HOSPITAL QUESTIONNAIRE

HOSPITAL _____

If there are any questions about your answers, who is the best person to call with follow-up queries and clarifications ?

NAME _____
TITLE _____
PHONE _____

Instructions

This questionnaire is designed to gather information and opinion mainly concerning hospital services and programs that are available for and used by children in the province of British Columbia. The information is requested by the Provincial Paediatric Hospital Utilisation Study Steering Committee, in order to help it consider what gaps and overlaps exist in the present system, and how things could be improved. The information is <u>not</u> intended for use by the Ministry of Health for funding decisions, and information that can be obtained from the reports sent to the Ministry has largely been excluded.

Results

The answers from the completed questionnaire will be tabulated and summarised for presentation to the committee. It is the intention to send the completed report/results back to the hospitals which responded to the questionnaire. The exact way in which this will be done will depend on the kinds of answers received, but some grouping of hospitals into like groups - e.g. by size, would probably be most useful for comparison purposes. Individual hospitals will, in most cases, not be identified in the report.

Age Limits

The questionnaire is primarily directed towards Child Services, which usually refers to the 0 - 14 age group. Services/programs that are primarily intended for/used by these age groups should be included, even if some older children, from time to time, use them. Programs and services aimed at Adolescents should also be reported, even if the majority of users are over 14 years of age. Services for the normal newborn who only spends time in the newborn nursery are generally excluded, as they are more closely linked with the obstetrical service.

If you have any questions concerning the questionnaire, please call Dr. A. D. Thomson, Medical Consultant, Hospital Programs, B.C. Ministry of Health, Victoria 387-4557

A. PAEDIATRIC BEDS

The Newborn Nursery for normal babes is excluded for the purpose of this study.

		Set-Up	Approved	In Operation
1.	Cribs	_____	_____	_____
2.	Child Beds	_____	_____	_____
3.	Adolescent Beds	_____	_____	_____
4.	SCN Level I	_____	_____	_____
	Level II	_____	_____	_____
	Level III	_____	_____	_____
5.	Paediatric ICU beds	_____	_____	_____

6. Please specify if the Paediatric beds are part of a larger unit. Yes _____ No _____

Are designated paediatric beds often used for adults or older adolescents ? Yes _____ No _____ (See Q. C3 - P.4)

If yes, how many beds are used, on average, for pediatric cases ? _____

7 If there are beds which are in 'swing' use, sometimes for children, sometimes for adults, or other circumstances which do not allow simple classification, please explain.

_____
_____
_____
_____
_____

8 Hospital Policy/Practice re upper age limit for admissions to Paediatric Unit _____

_____
_____
_____
_____
_____

B. PAEDIATRIC MANPOWER

1. MEDICAL

		Number	Sub-Specialities
a)	Paediatricians i) On Active Staff (or other staff category with admitting privileges) (If prime-based at another hospital, please indicate)	_____	_____ _____
	ii) On Consulting Staff (or other staff category without admitting privileges)	_____	_____ _____
b)	Family Doctors Family Doctors with special interest/training in Paediatrics (please specify)	_____	
* c)	Anaesthetists with training in Paediatric Anaesthesia	_____	
* d)	Pathologists with special interest/training in Paediatric Pathology	_____	
* e)	Radiologists with special interest/training in Paediatric Diagnostic Imaging	_____	
f)	Child Psychiatrists	_____	
* g)	Surgeons with training in paediatric surgery	_____	
h)	Other specialist with paediatric training - specify		

* Where a physician has a special interest or special training in pediatric medicine, but is not a fully certified specialist, please indicate the amount and level of the training and/or interest. E.g. '6 months training in pediatric anaesthesia'; or 'ten years experience as Director of Infant Development Centre' etc.

2. NURSING

This section refers to nursing staff whose primary role is full-time care of children in a paediatric unit, ambulatory care centre or other child-centred hospital service.

A) Qualifications

	F.T.E. Staff	Post-Basic Diploma in Paeds*	B.Sc.N B.N.	MSc	Other
Paediatric Unit	_____	_____	_____	____	____
Ambulatory Care	_____	_____	_____	____	____
Nursery	_____	_____	_____	____	____
Other	_____	_____	_____	____	____

B) Experience

	Number of Staff
More than 5 years of full time paediatric nursing	_____
More than 1 year's experience in a tertiary paediatric hosp.	_____

* Only include nurses who receive special allowance by virtue of their training. Training/Qualifications not accepted for such allowance should not be included above.

3. OTHER PROFESSIONAL STAFF with SPECIAL TRAINING in CHILD CARE

a) Physiotherapy

b) Occupational Therapy

c) Social Work

d) Psychology

e) Respiratory Therapy

f) Other

Please specify the nature and amount of the Special Training, and the qualification/certificate obtained where appropriate.

C. USE of GENERAL HOSPITAL SERVICES by CHILDREN

1) Are the hospital's ICU beds used by children ?

Often _____ _____

Sometimes _____ _____

Rarely _____ _____

Never _____ _____

(Estimate annual cases and days if possible.)

If the answer is Rarely or Never, are children requiring care normally provided in an I.C.U. (e.g. mechanical ventilation) sometime looked after on the pediatric ward?
Yes _____ No _____

2) Are children ever placed on adult wards - e.g. surgical cases?

Often _____

Sometimes _____

Rarely _____

Never _____

(Estimate annual cases and days if possible.)

3) Are adults often placed in designated Paediatric beds?

Often _____

Sometimes _____

Rarely _____

Never _____

(Estimate annual cases and days if possible.)

4) What proportion of Pediatric cases are admitted as

a) Emergencies _____

b) Elective Cases _____

Do you often have problems finding beds in your hospital for pediatric admissions? Yes _____ No _____

D. SPECIAL SERVICES FOR CHILDREN

Which of the following services does your hospital provide for children on a regular or emergency basis ?*

		Inpatient		Outpatient	
		Yes	No	Yes	No
1)	Chemotherapy (IV)	____	____	____	____
2)	Total Parenteral Nutrition	____	____	____	____
3)	Respiratory Therapy Services	____	____	____	____

4) Intubation — For which age groups is intubation routinely undertaken for surgical procedures ?

	Yes	No
Neonates (< 1 month)	____	____
Infants (> 1month, < 1 year)	____	____
Children above what age ?	____	

Who does the intubation ? _____

_____

5) Ventilation

	Short Term < 24hours	> Long Term
i) Neonates	_____	_____
ii) Infants	_____	_____
iii) Children	_____	_____
iv) Adolescents	_____	_____

6) Oximetry (Outside OR/PAR) Yes ____ No ____

If Yes, in what areas of the hospital ? _____

_____

7) Blood Gases Yes ____ No ____

* There is space for expansion of any answers on the next page.

D. SPECIAL SERVICES FOR CHILDREN (cont.)

8) I.Vs

	Start Only	Maintain > 48hours
Neonates	_____	_____
Infants	_____	_____
Children	_____	_____

9) Pediatrician Cover

On Call 24 hours/Day at all times _____
In-house cover at all times _____
Other - please specify _____

10) Other - please specify _____
(See also later questions) _____

Comments/Additions _____

E. AMBULATORY CARE

1) Emergency Department

Does the hospital provide any specialised services for children in the Emergency Department ?
e.g. Separate Examining Room
Staff with special Training in Child Care
Other

_____

_____

2) Organised Out-Patient Clinics

Does the hospital run any special programs for children ?
e.g. Clinics

	Regular In House	Visiting Clinics	How Often?
General Paediatric Clinic	_____	_____	_____
Special Clinics e.g. Diabetic	_____	_____	_____
Spina Bifida	_____	_____	_____
General Nutrition	_____	_____	_____
Cystic Fibrosis	_____	_____	_____
Mental Handicap	_____	_____	_____
Adolescent	_____	_____	_____
Other (Name)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
Other Special Programs	_____	_____	_____
	_____	_____	_____

Please mark with an 'M' those that are Multi-disciplinary - i.e. where the child (± Parent) is seen by different health professionals

E. AMBULATORY CARE (cont.)

3) Day Surgery

	Commonest types of Procedures	Annual Volume (Cases)
a)	_____	_____
b)	_____	_____
c)	_____	_____
d)	_____	_____
e)	_____	_____
f)	_____	_____

4) Day Clinics

	e.g. Planned Investigation Unit; Diabetic Day Care	Annual Volume (Visits)
a)	_____	_____
b)	_____	_____
c)	_____	_____
d)	_____	_____
e)	_____	_____
f)	_____	_____

5) OUTREACH SUPPORT SERVICES

Does the hospital provide any programs which provide services to children in a community setting- e.g. in the home, in schools or other non-hospital settings ? If so, please list these

_____
_____
_____

F. SUPPORT SERVICES

1) LABORATORY

Does the hospital have Technologists dedicated to the Paediatric Unit ? If so please give number.

_____

Do Laboratory Technicians regularly take blood from Neonates ? Infants?
If the answer is 'No', who does take these samples?

_____

Can all services provided by the lab be performed on small samples (micro-methods), including blood gases ?

YES _____ NO _____

2) DIAGNOSTIC IMAGING

Is there an age cut-off for services provided by your Diagnostic Imaging Service - i.e.an age below which children/infants will not be accepted ? If so, what is that age level, and for what procedures?

_____

_____

_____

Which Diagnostic Services are available for children ?

		YES	NO
a)	Straight X-Rays	_____	_____
b)	Contrast Media/Fluoroscopy	_____	_____
c)	Nuclear Medicine	_____	_____
d)	Ultrasound	_____	_____
e)	C.T. Scanning	_____	_____
f)	Other (specify)	_____	

_____

3) ELECTRODIAGNOSTICS
Does the hospital provide a) EKG b) EEG

for Neonates? Yes____ No____ Yes ____ No___

Infants? Yes____ No____ Yes____ No____

4) Does the hospital have a department or person responsible for CHILD LIFE PROGRAMS (Play Therapy)?

_____

_____

Are School Programs provided ? If so, for what age groups ? _____

_____

_____

6) OTHER

_____

_____

_____

_____

_____

G. **COMMUNITY SERVICES**

Please list the services which are available for children in your community - i.e. which do not require out of area travel. Please stae who provides these services.

e.g. Physiotherapy _____

Occupational Therapy_____

Psychology _____

Genetics _____

Infant Development Programs _____

Special Needs Play School _____

Hearing and Speech Services _____

Mental Health Services _____

Other programs not specified above _____

_____

_____

_____

_____

_____

H. GENERAL QUESTIONS

1) Meeting the needs of the community

- How well do you believe the hospital meets the needs of the community for child health care services ?

- In which areas are services lacking?

- Do you think the hospital could safely and effectively offer any of these missing services, given the population served ?

H. GENERAL QUESTIONS (cont.)

2) Referral Patterns

IN - For which other communities does the hospital act as a referral centre, and for which services ?

SERVICE	COMMUNITIES

OUT - To which hospitals/centres are paediatric cases referred if they cannot be properly diagnosed and treated in the hospital - and for what services ?

SERVICE	HOSPITAL/CENTRE

If the services were available in a geographically closer (more accessible) centre, would referral patterns change ?

_____

_____

_____

H. GENERAL QUESTIONS (cont.)

3) Relationship with the Children's Hospital of British Columbia

What types of cases are currently referred to the Children's from the hospital? e.g. cases requiring pediatric surgery / anaesthesia; All neonatal cases requiring prolonged ventilation; etc

How do you rate the service you receive from the Children's Hospital? In what areas is it best, and in which areas could it be improved ?

H. GENERAL QUESTIONS (cont.)

4) Please suggest any other ways in which you think that the paediatric services provided in your community could be improved. You should not only consider specific patient services as noted above, but also support factors, such as:

educational services for staff;
better communication and information systems;
greater regionalisation of services';
better transportation;
etc.

Any suggestions as to who should provide these services would also be useful.

HOSPITAL PEDIATRIC SERVICES QUESTIONNAIRE - RESPONSES

	Hospital Size (Acute Beds)	BEDS Total Excludes Bassinets	Pedi-atric	Adol-escent	ICU	Pediat-icians (Active)	DISTANCE from Vancouver (km)	from Reg. Hosp. (km)	WORKLOAD 1988 - 1989 0 - 14 years Cases	Days	UTILISATION per 1000 pop'n in LHA - 1987 Cases	Days
QUESTION NUMBER>			A1/2	A3	A5	B1a						
QUESTION NUMBER>			A1/2	A3	A5	B1a						
B.C.C.H.	180	183	141	22	20	201	0	0	7588	67916	55	350
Royal Columbian	540	25	25	(4-5)	0	7	25	0	1581	9787	86	315
G.V.H.S. Victoria General	420 +525	47	47	incl	4	8	200	0	3184 (3150)(	11948 11513)	74	265
Lion's Gate	400	10	10	0	0	4	10	0	1009	3249	52	313
Burnaby	385	18	18	0	0	4	5	5	936	4133	81	327
Royal Inland	380	38	23	0	0	4	350	0	1362	8183	73	295
Surrey	364	35	35	0	0	5	25	0	2182	8950	69	372
Kelowna	325	13	10	3	0	3	475	0	1077	3959	59	299
Prince George	270	26	26	0	6	3	780	0	2175	9041	97	414
Nanaimo	235	14	14	0	0	3	150	0	1183	4120	77	344
Penticton	201	12	10	2	0	2	400	0	765	2960	75	288
St. Mary's (New West.)	192	4	4 EENT	0	0	4	25	0	418	820	66	315
Richmond	188	12	12	0	0	4	5	5	959	1797	45	215
Vernon	180	19	19	0	0	3	470	0	864	2586	79	274
Chilliwack	180	16	16	0	0	1	135	0	676	2270	75	388
Mt.St.Joseph	161	8	8	0	0	6	0	3	479	1900	55	398

HOSPITAL PEDIATRIC SERVICES QUESTIONNAIRE - RESPONSES

	Hospital Size (Acute Beds)	BEDS Total Excludes Bassinets	Pedi-atric	Adol-escent	ICU	Pediat-ricians (Active)	DISTANCE from Vancouver (km)	from Reg. Hosp. (km)	WORKLOAD 1988 - 1989 0 - 14 years Cases	Days	UTILISATION per 1000 pop'n in LHA - 1987 Cases	Days
Trail	147	8	8	0	0	1	635	0	432	1582	101	329
St Joseph (Comox)	145	4	4	0	0	1	250	7	547	2097	54	264
Cowichan	135	17	15	2	0	1	200	50	813	3118	105	448
Peace Arch (White Rock)	105	4	4	0	0	2	50	25	284	567	69	372
Surrey Hill	55 rehab/ L.T.C.	55	?	?	?	12	5	5	422 (482)	7985 (9009)	0	0
Queen Alexandra (Arbutus Soc)	65 rehab/ L.T.C.	65	26	39	0	6	200	5	200 (264)	12828 (18158)	0	0
Campbell River	84	4	4+	0	0	0	270	150	505	1354	65	265
Kootenay Lake (Nelson)	89	6	6	0	0	1	600	80	265	715	73	277
Mills Memorial (Terrace)	89	22	12	10	0	1	1375	?	616	3040	106	537
Powell River	86	12	12	0	0	1	150	150	266	884	90	485
Fort St.John	85	21	21	0	0	0	1250	?	483	1525	78	285
Cranbrook	80	5	5	0	0	1	850	?	417	1265	(290)LTC 87	(883) 277
Kitimat	73	6	6	0	0	1 (Visiting)	Calg 450 1400	60	206	754	124	441
G.R.Baker (Quesnel)	60	5	5	0	0	0	686	120	442	1150	94	374
Shuswap Lake (Salmon Arm)	55	2	2	0	0	0	480	60	172	387	55	193
St. Mary's (Sechelt)	55	6	6	0	0	1	100	100	214	496	72	251
Kimberley	50	4	4	0	0	0	880	28	92	242	71	249
Bulkley Valley (Smithers)	48	6	6	0	0	1	Calg 400 1160	370	388	1328	110	807

HOSPITAL PEDIATRIC SERVICES QUESTIONNAIRE - RESPONSES

	Hospital Size (Acute Beds)	BEDS Total Excludes Bassinets	Pedi-atric A1/2	Adol-escent A3	ICU A5	Pediat-icians (Active) B1a	DISTANCE from Vancouver (km)	from Reg. Hosp. (km)	WORKLOAD 1988 - 1989 0 - 14 years Cases	Days	UTILISATION per 1000 pop'n in LHA - 1987 Cases	Days
QUESTION NUMBER>												
S.Okanagan (Oliver)	45	2	2	0	0	0	400	47	88	146	102	329
100 Mile House	37	0	0	0	0	0	460	200	219	542	109	486
Burns Lake	36	6	6	0	0	0	1010	225	175	836	90	411
Boundary (Grand Forks)	35	2	2	0	0	0	525	110 (Trail)	77	155	133	559
Ladysmith	32	2	2	0	0	0	150	23 (Nanaimo)	101	226	119	391
Queen Victoria (Revelstoke)	31	2	2	0	0	0	565	210	104	201	65	262
Wrinch Memorial (Hazelton)	28	4	4	0	0	0	1225	440 (P.G.)	172	511	106	537
Sparwood	27	5	5	0	0	0	980 Calg 300	130	310	847	127	348
Windermere (Invermere)	27	0	0	0	0	0	830 Calg 380	130 (Cranbr.)	88	133	78	238
Golden	25	3	3	0	0	0	710 Calg 260	380 (R.I.H.)	189	380	105	210
Tofino	21	6	6	0	0	0	325	210 (Nanaimo)	110	229	95	445
Squamish	21	2	2	0	0	0	65	60	178	360	78	274
Princeton	20	1	1	0	0	0	285	100 (Penticton)	46	85	111	431
Enderby	20	0	0	0	0	0	500	40 (Vernon)	84	280	95	357
Chetwynd	18	2	2	0	0	0	1100 Edmon 700	310 (P.G.)	190	653	91	368
R.W.Large Hsm (Wagilsla)	16	3	3	0	0	0	500 (by air)	0	79	254	183	713
Dr. Helmcken (Clearwater)	13	2	0	0	0	0	480	120 (R.I.H.)	50	99	61	244
Tahsis	10	2	2	0	0	0	450	300 (Nanaimo)	21	28	96	481
Stewart	10	2	2	0	0	0	1500	340 (Terrace)	10	12	106	537
Port McNeill	10	2	2	0	0	0	500	370 (Nanaimo)	95	230	124	560
Port Alice	7	2	2	0	0	0	550	400 (Nanaimo)	36	62	124	560

HOSPITAL PEDIATRIC SERVICES QUESTIONNAIRE - RESPONSES

PEDIATRIC MANPOWER

	Mixed c Adults?	% Emerg. Cases	Age Limit	Pediat-icians (Active)	Specialists 1 (A)	2 (X)	3 (L)	4 (P)	Other	Nursing Total	Post Basic	Experience > 5 years	>1yr Tert	Other Health Professions P.T.	O.T.	S.W.	PSYC	R.T.	OTHER
QUESTION NUMBER>	A8/7:C3	C4	A8	B1a	c	e	d	f	g/h	B2A	B2A	B2B	B2B	B3a	B3b	B3c	B3d	B3e	B3f
B.C.C.H.	0	?	18 (Pay)	201	7	8	21	11	6 Med Gen	496.3	1	?	?	?	?	?	?	?	?
Royal Columbian	Occasiona 150 p.a.	95%	18	7	0	0	0	1	Ortho	22.2	0	21	11	0	0	0	0	0	0
G.V.H.S. Victoria General	no	63% (5% surg)	17	8	0	1	1	6	Neuro	48	1	20	7	0	0	0	0	0	0
Lion's Gate	yes 6 flex beds	60%	18	4	1	0	0	4	0	14	0	9	5	yes	yes	0	yes	0	0
Burnaby	yes 52pts/yr	80%	19	4	0	0	1	2	2xSurg.	19.5	1	7	1	0	0	0	0	0	0
Royal Inland	yes 48/yr	80%	17	4	0	0	0	0	0	16	0	13	3	yes	yes	yes	0	yes	0
Surrey	no	?	?	5	0	0	0	0	Surgeon	?	?	?	?	0	0	yes	0	0 (exp)	0
Kelowna	yes	90%+	18	3	0	0	0	1	Surgeon	15	?	15	?	0	0	0	0	0	0
Prince George	no	75%	16	3	0	0	0	1	0	20	0	9	13	0	0	0	0	0	child life
Nanaimo	yes	?	?	3	0	1	0	0	Plastic S	15	0	?	?	0	0	0	0	0	0
Penticton	no	BBMN 24S	19	2	0	0	0	0	Developmal Behaviour Pediatric	8	0	8	0	0	0	?	0	0	0
St. Mary's (New West.)	yes	0%	N/A	4	0	0	0	0	0	9.8	0	1	0	0	0	0	0	0	0
Richmond	yes	95%	18	4	1	0	0	0	Surgeon	14	0	0	1	0	0	0	0	0	0
Vernon	yes	90% 50%	none	3	0	0	0	0	0	11	0	8	0	0	0	0	0	0	0
Chilliwack	yes	75%	18	1	1	0	0	0	0	11.6	0	6	1	0	0	0	0	0	0
Mt.St.Joseph	yes (ecc)	60%	14	6	0	0	0	0	Hematology Endocrin Neonatology Allergy	8	1	7	2	yes	yes	yes	no	no	0

HOSPITAL PEDIATRIC SERVICES QUESTIONNAIRE - RESPONSES

PEDIATRIC MANPOWER

	Mixed c Adults?	% Emerg. Cases	Age Limit	Pediatricians (Active)	Specialists 1 (A)	2 (X)	3 (L)	4 (P)	Other	Nursing Total	Post Basic	Experience > 5 years	>1yr Tert	Other Health Professions P.T.	O.T.	S.W.	PSYC	R.T.	OTHER
Trail	yes	50%	none	1	0	0	0	1	0	4.5	0	3.5	0	no	no	no	no	no	0
St Joseph (Comox)	yes	74%	14	1	0	0	0	0	0	4.3	0	0	0	no	no	no	no	no	0
Cowichan	yes	40%	none	1	0	0	0	0	0	11	0	7	2	no	no	no	no	no	0
Peace Arch (White Rock)	yes	95%	18	2	0	0	0	0	ENT Ortho(?)	0	0	0	0	no	no	no	no	no	0
Sunny Hill	no	0%	19	12	0	0	0	1	Ortho	42	0	20	?	yes	yes	yes	yes	no	yes
Queen Alexandra (Arbutus Soc)	no	0%	19	6	0	0	0	0	Neurology	30	1	18	25	yes	yes	yes	yes	no	yes
Campbell River	yes	? 70%	14	0	0	0	0	0	0	8.8	0	2	1	no	no	no	no	no	0
Kootenay Lake (Nelson)	yes	?	14	1	0	0	0	0	0	?	?	0	0	no	no	no	no	no	0
Mills Memorial (Terrace)	yes	1% (28%)	14	1	0	0	0	0	0	4.2	0	?	?	no	no	no	no	no	0
Powell River	yes	80%	none	1	0	0	0	0	0	4.2	0	3	0	no	no	no	no	no	0
Fort St.John	yes	20%	18	0	0	0	0	0	0	8	0	4	1	no	no	no	no	no	0
Cranbrook	yes	33%	13	1	0	0	0	0	0	1	0	0	0	no	no	no	no	no	Famil Ther
Kitimat	yes	75%	15	1 (Visiting)	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
G.R.Baker (Quesnel)	yes	?	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Shuswap Lake (Salmon Arm)	yes	H 90% S 40%	14	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
St. Mary's (Sechelt)	yes	?	14	1	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Kimberley	yes	75%	15	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Bulkley Valley (Smithers)	yes	75%	none	1	0	0	0	0	0	9 A and C	0	1	1	yes	yes	no	no	no	0

HOSPITAL PEDIATRIC SERVICES QUESTIONNAIRE - RESPONSES

PEDIATRIC MANPOWER

	Mixed c Adults?	% Emergt Cases	Age Limit	Pediat-icians (Active)	Specialists 1 (A)	2 (X)	3 (L)	4 (P)	Other	Nursing Total	Post Basic	Experience > 5 years	>1yr Tert	Other Health Professions P.T.	O.T.	S.W.	PSYC	R.T.	Other
S.Okanagan (Oliver)	yes	100%	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
100 Mile House	yes	83%	?	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Burns Lake	no	?	?	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Boundary (Grand Forks)	yes	90%+	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Ladysmith	yes	87%	+/-6	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Queen Victoria (Revelstoke)	yes	78%	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Wrinch Memorial (Hazelton)	yes	80%	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Sparwood	yes	50%	5yrs	0	0	0	0	0	0	0	0	2	0	no	no	no	no	no	0
Windermere (Invermere)	yes	?	?	No Reply						No Reply				No Reply					
Golden	no	0.7	10yrs	1	0	0	0	0	0	3.2 (Total)	0	0	0	no	no	no	no	no	0
Tofino	no	95%	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Squamish	yes	87%	14yrs	0	0	0	0	0	0	0	0	0	0	No Reply					
Princeton	yes	50%	14yrs	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Enderby	yes	90%	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Chetwynd	yes	44%	14	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
R.W.Large Mem (Wagilsle)	yes	75%	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Dr. Helmcken (Clearwater)	yes	100%	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Tahsis	yes	100%	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Stewart	yes	100%	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Port McNeill	yes	25%	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0
Port Alice	yes	?	none	0	0	0	0	0	0	0	0	0	0	no	no	no	no	no	0

SPECIAL SERVICES

	IV Chemo		T.P.N.		RespTher		Intubation			Ventilation			Oxim	Blood	Intravenous		
	inpt	op	inpt	op	inpt	op	1/12	1yr	1yr+	1/12	1yr	1yr+	-etry	Gases	1/12	1yr	1yr+
QUESTION NUMBER>	D1		D2		D3		--- D4 ---			--- D5 ---			D6	D7	--- D8 ---		
B.C.C.H.	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Royal Columbian	?	no	SCN only	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
G.V.H.S.	yes	yes	yes	no	yes	?	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Victoria General																	
Lion's Gate	no	no	no	no	yes	yes	yes	yes	yes	y/2	y/2	y/2	yes	yes	yes	yes	yes
Burnsby	no	no	no	no	no	no	no	no	yes 2+)	manual only			yes	yes	yes	yes	yes
Royal Inland	yes	yes	yes	no	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Surrey	no	no	no	no	yes	?	yes (transp only)	yes	yes	?	?	?	yes	yes	yes	yes	yes
Kelowna	yes	?	yes	?	yes	?	yes	yes	yes	yes (short term)	yes	yes	yes	yes	yes	yes	yes
Prince George	yes	yes	yes	no	yes	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Nanaimo	yes	?	yes	?	yes	?	yes	yes	yes	yes (short term)	yes	yes	yes	yes	yes	yes	yes
Penticton	yes	yes	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
St. Mary's (New West.)	no	no	no	no	no	no	no	no	yes	no	yes	yes (rarely)	no	no	no	no	yes
Richmond	no	no	no	no	yes	yes	no	no	yes (2+)	?	?	?	no	yes	yes	yes	yes
Vernon	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Chilliwack	no	no	no	no	yes	yes	no	yes	yes	no	no	no	no	yes	yes	yes	yes
Mt.St.Joseph	no	no	no	no (7yrs+)	yes	yes	no	no	yes	no	no	no	no	rarely	no	yes	yes

SPECIAL SERVICES

	IV Chemo		T.P.N.		Resp Ther		Intubation			Ventilation			Oxim	Blood Gases			Intravenous		
	Inpt		op Inpt		op Inpt		op 1/12	1yr	1yr+	1/12	1yr	1yr+	-etry	1/12	1yr	1yr+			
Trail	yes	no	occ	no	yes	no	yes	yes	yes	yes	no	no	yes	rarely	yes	yes	yes		
St Joseph (Comox)	?	rare	no	no	?	?	yes	yes	yes	no	no	no	yes	no	?	yes	yes	Rare	
Cowichan	no	yes	no	no	no	no	no	yes	yes	no	no	no	no	yes	yes	yes	yes		
Peace Arch (White Rock)	no	no	no	no	yes	yes	no	yes	yes	no	yes	yes	yes	yes	yes	yes	yes		
Surrey Hill	no	no	no	no	no	no	no	no	no	no	no	yes	no	no	no	no	no		
Queen Alexandra (Arbutus Soc)	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no		
Campbell River	no	no	no	no	yes	yes	no	yes	yes	no	yes	yes	yes	yes	yes	yes	yes		
Kootenay Lake (Nelson)	yes	yes	no	no	no	no	yes	yes	yes	no (short term)	yes	yes	yes	yes	yes	yes	yes		
Mills Memorial (Terrace)	yes	yes	no	no	?	?	yes	yes	yes	no (short term)	yes	yes	yes	yes	yes	yes	yes		
Powell River	yes	yes	no	no	no	no	no	no	yes	no	no	no	yes	yes	yes	yes	yes		
Fort St.John	yes	yes	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes		
Cranbrook	no	yes	no	no	yes	yes	no	yes	yes	no	?	?	yes	no	yes	yes	yes		
Kitimat	yes	yes	no	no	yes	yes	no	yes	yes	no	no	no	yes	yes	yes	yes	yes		
G.R.Baker (Quesnel)	no	yes	no	no	no	no	no	no	yes (2+)	no	no	yes	yes	yes	yes	yes	yes		
Shuswap Lake (Salmon Arm)	no	yes	no	no	yes	yes	?	?	?	?	?	?	no	?	?	?	?		
St. Mary's (Sechelt)	no	no	no	no (R.N.)	yes	yes	no	no	yes (3+)	emergency/ short term only			yes	yes	no	yes	yes		
Kimberley	no	no	no	no	no	no	no	no	?	no	no	no	yes	yes	yes	yes	yes		
Bulkley Valley (Smithers)	yes	yes	no	no	no	no	yes	yes	yes	no	no	no	yes	yes	yes	yes	yes		

SPECIAL SERVICES

	IV Chemo		T.P.N.		Resp Ther		Intubation			Ventilation			Oxim	Blood	Intravenous	
	inpt	op	inpt	op	inpt	op	1/12	1yr	1yr+	1/12	1yr	1yr+-etry	Gases	1/12	1yr	1yr+
S.Okanagan (Oliver)	no	no	no	no	no	yes	no	no	no	emergency/ short term only		yes	yes	no	no	yes
100 Mile House	no	no	no	no	no	yes	no	no	yes (3+)	no	no	no yes	yes (rarely)	no	no	yes
Burns Lake	no	no	no	no	no	no	no	no	yes (3+)	no	no	no ?	no	no	yes	yes
Boundary (Grand Forks)	no	no	no	no	no	no	no	no	no	no	no	no no	no	no	no	yes
Ladysmith	no	no	no	no	yes	yes	no	no	yes	no	no	no no	no	no	no	yes
Queen Victoria (Revelstoke)	no	no	no	no	yes	yes	no	no	yes (3+)	no	no	no no	yes	no	yes	yes
Wrinch Memorial (Hazelton)	yes very rare)	yes	no	no	no	no	no	no	yes	emergency/ short term only		yes	yes	yes	yes	yes
Sparwood	no ?		no ?		yes ?		no	no	yes (3+)	emergency/ short term only		no	yes	no	yes	yes
Windermere (Invermere)	No Reply						No Reply						No Reply			
Golden	no	no	no	no	yes	yes	no	no	yes	short term		yes	no	yes	yes	yes
Tofino	no	no	no	no	yes	yes	no	no	no	no	no	no no	no	no	no	yes
Squamish	No Reply						No Reply						No Reply			
Princeton	no	no	no	no	yes	yes	no	no	yes	no	no	no no	yes	no	yes	yes
Enderby	no	no	no	no	yes	yes	no	yes	yes	no	no	no no	no	no	no	yes
Chetwynd	no	no	no	no	no	no	no reply			emergency		yes	yes	no	yes	yes
R.W.Large Mem (Wagilsla)	no	no	no	no	yes	yes	no	no	yes (2+)	no	no	yes no	no	no	yes	yes yes
Dr. Helmcken (Clearwater)	no	no	no	no	yes	yes	no	no	no	no	no	no yes	yes	no	yes	yes
Tahsis	no	no	no	no	yes	yes	no	no	no	emergency		no	no	yes	yes	yes
Stewart	no	no	no	no	yes	yes	no	no	no	No Reply		no	no	no	yes	yes
Port McNeill	no	no	no	no	yes	yes	No Reply			no	no	no no	no	no	yes	yes
Port Alice	no	no	no	no	no	no	no	no	no	no	no	no no	no	no	yes	yes

AMBULATORY CARE PROGRAMS

	Active Staff Pediat -rians	Ped. On Call 24h o-c	1 24h inh	2 24h -er	3 oth	Emergency Dept Ped area?	Organised Out-Patient Dept 1 (D)	2 M-H	3 C.F	4 M-H	5 Adol	6 Onc	Other	DAY PROGRAMS SURGERY	CLINICS	OUTREACH SERVICES
QUESTION NUMBER>	B1a	B9				E1	E2							E3	E4	E5
B.C.C.H.	201	yes	yes	yes	yes	yes	y	y	y	y	y	y		yes	yes	Travelling Clinics
Royal Columbian	7	yes	yes	vent only	no	4 bed des	0	0	0	0	0	0	0	yes	no	none
G.V.H.S. Victoria General	8	yes	yes	yes	no	yes	y	y (v)	y	0	0	y	Asthma Growth Ho Cleft Pal Seizure Scoliosis	yes	yes	SCAN REACH
Lion's Gate	4	yes	yes	no	int	4 bed des	y	0	0	0	0	0	0	yes	D.D.C.	CHILD PROT SCAN SCH/HOSP
Burnaby	4	yes	yes	no	0	1 exam rm	0	0	0	0	0	0	Sex Abuse	?	0	no
Royal Inland	4	yes	yes	no	0	no	yes	0	0	0	0	0	Renal Tx Hemophilia	yes	Diabetes	SIDS Apnea Monitor
Surrey	5	yes	yes	no	0	yes	yes	0	0	0	yes	0	Gen Nut.	yes	0	?
Kelowna	3	yes	yes	no	res.	no	yes	0	0	0	0	0	Asthma	yes	DDC	no
Prince George	3	yes	yes	no	0	no	yes	0	0	0	0	0	Seating with SBH	yes	DDC	no
Nanaimo	3	yes	yes	no	0	no	yes	0	0	0	0	0	0	yes	no	?
Penticton	2	yes	yes	no	0	exam room play area	yes	0	0	0	0	yes	General Gen Nutr.	yes	DDC	no
St. Mary's (New West.)	4	no	no	no	0	no	0	0	0	0	0	0	0	no	no	no
Richmond	4	yes	yes	no	0	no	0	0	0	0	0	0	0	yes	no	no
Vernon	3	yes	yes	no	0	1 crib	yes	0	0	0	0	0	Asthma HomeApnea	yes	DDC	no
Chilliwack	1	yes	yes	no	no	no	0	0	0	0	0	0	0	yes	no	no
Mt.St.Joseph	6	yes	yes	no	no	no	0	0	0	0	0	0	0	yes	no	no

	Active Staff Pediat -rians	On Call Ped. 1 24h o-c	2 24h inh	3 oth -er	ANBULATORY CARE PROGRAMS Emergency Dept Ped area?	Organised Out-Patient Dept 1 (D)	2 M-H	3 C.F	4 H-H	5 Adol	6 Onc	Other	DAY PROGRAMS SURGERY	CLINICS	OUTREACH SERVICES
Trail	1	yes	yes	no	no	no	0	0	0	0	0	0	0	yes	no	no
St Joseph (Comox)	1	yes	yes	no	no	no	yes	0	0	0	0	0	0	yes	DDC	no
Cowichan	1	yes	yes* 85%	no	no	no	0	0	0	0	0	0	0	yes	no	no
Peace Arch (White Rock)	2	yes	yes	no	no	1 crib	0	0	0	0	0	0	0	yes	no	no
Sunny Hill	12	yes	yes	no	no	no	0	0	0	7	7	no	13 clinics	no	no	Seating Clinic
Queen Alexandra (Arbutus Soc)	6	yes	no yesP	no	no	no	0	yes GVHS	0	0	0	0	6 clinics	no	no	no
Campbell River	0	no	no	no	no	no	0	0	0	0	0	0	0	yes	no	no
Kootenay Lake (Nelson)	1	yes	yes	no	no	no	yes	0	0	0	0	0	Orthopedics Special Needs	yes (Teeth)	no	no
Mills Memorial (Terrace)	1	yes	yes	no	no	no	0	0	0	0	0	0	0	yes	no	no
Powell River	1	yes	yes	no	no	no	0	0	0	0	0	0	0	yes	no	no
Fort St.John	0	no	no	no	no	no	0	0	0	0	0	0	Allergist	yes	no	no
Cranbrook	1	yes	yes 70%	no	no	no	yes	0	0	0	0	0	0	no	DDC	no
Kitimat	1 (Visiting)	no	no	no	no	no	0	0	0	0	0	0	0	yes	no	no
G.R.Baker (Quesnel)	0	no	no	no	no	no	0	0	0	0	0	0	0	Cystos/circs	no	no
Shuswap Lake (Salmon Arm)	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
St. Mary's (Sechelt)	1	?	?	?	?	no	0	0	0	0	0	0	0	yes	no	no
Kimberley	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	Cooperate Home Care
Bulkley Valley (Smithers)	1	yes	yes	no	no	no	0	0	0	0	0	0	Allergy	yes	no	? CDC

	Active Staff Pediat -rians	On Call Ped. 24h	1 0-c	2 inh	3 oth -er	AMBULATORY CARE PROGRAMS: Emergency Dept	Organised Out-Patient Dept: 1 (D)	2 M-H	3 C.F	4 M-H	5 Adol	6 Onc	Other	DAY PROGRAMS: SURGERY	CLINICS	OUTREACH SERVICES
S.Okanagan (Oliver)	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	SW abuse cases
100 Mile House	0	no	no	no	no	no	0	0	0	0	0	0	0	dentals	no	no
Burns Lake	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
Boundary (Grand Forks)	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
Ladysmith	0	no	no	no	no	no	0	0	0	0	0	0	0	yes	no	no
Queen Victoria (Revelstoke)	0	no	no	no	no	no	0	0	0	0	0	0	0	yes	DDC	no
Wrinch Memorial (Hazelton)	0	no	no	no	no	no	0	0	0	0	0	0	0	yes	no	no
Sparwood	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
Windermere (Invermere)	No Reply					no	No Reply							No Reply		
Golden	1	yes	yes	no	no	no	0	0	0	0	0	0	0	no	no	no
Tofino	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
Squamish	0	No Reply				no	0	0	0	0	0	0	0	yes	no	no
Princeton	0	no	no	no	no	no	0	0	0	0	0	0	0	yes (T & As)	no	no
Enderby	0	no	no	no	no	no	0	0	0	0	0	0	0	yes	no	no
Chetwynd	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
R.V.Large Mem (Wagilsla)	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
Dr. Helmcken (Clearwater)	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
Tahsis	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
Stewart	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
Port McNeill	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no
Port Alice	0	no	no	no	no	no	0	0	0	0	0	0	0	no	no	no

HOSPITAL PEDIATRIC SERVICES QUESTIONNAIRE - RESPONSES

Appendix C-2
e-1

SUPPORT SERVICES

	DIAGNOSTIC SERVICES					ELECTRODIAGNOSTICS		Child Life	School	Other
	Lab	X-Ray	U/S	Nuc Med	C.T.	EKG	EEG			
QUESTION NUMBER>	F1	F2a	F2d	F2c	F2e	F3a	F3b	F4	F4	F8
B.C.C.H.	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Royal Columbian	yes	yes	yes	yes	yes	yes	yes	no	yes	Cytogenet
G.V.H.S. Victoria General	yes	yes	yes	yes	yes	yes	yes	yes	yes	Rehab Cytogenet
Lion's Gate	yes	yes	yes	yes	yes	yes	yes	no	yes	Child Cri Abuse Gro Program
Burnaby	yes	yes	yes	yes	yes	yes	yes	no	yes	none
Royal Inland	yes	yes	yes	yes	yes	yes	yes	no	2hrs/day	none
Surrey	yes	yes	yes	0	yes	yes	yes	?	yes	none
Kelowna	yes	yes	yes	yes	yes	yes	yes	no	yes	none
Prince George	yes	yes	yes	yes	yes	yes	yes	yes	yes	none
Nanaimo	yes	yes	yes	yes	yes	yes	yes	no	visiting teachers	none
Penticton	yes	yes	yes	no	no	yes	yes	volunteer	visiting teachers	none
St. Mary's (New West.)	no	yes	yes	no	no	no	no	no	no	none
Richmond	yes	yes	yes	no	yes	yes	no	no	visiting teacher	none
Vernon	yes	yes	yes	yes	no	yes	no	Volunteer	yes	Extended Care Unit
Chilliwack	yes	yes	yes	yes	yes	yes	no	Volunteer	yes	none
Mt.St.Joseph	yes	yes	yes	no	no	yes	no	no	no	none

SUPPORT SERVICES

	DIAGNOSTIC SERVICES					ELECTRODIAGNOSTICS		Child Life	School	Other
	Lab	X-Ray	U/S	Nuc Med	C.T.	EKG	EEG			
S.Okanagan (Oliver)	yes	yes	yes	no	no	yes	no	no	no	none
100 Mile House	yes	yes	no	no	no	?	no	no	no	none
Burns Lake	yes	yes	yes	no	no	yes	no	no	yes	none
Boundary (Grand Forks)	yes	yes	yes	no	no	no	no	no	no	none
Ladysmith	yes	yes	no	no	no	yes	no	no	no	none
Queen Victoria (Revelstoke)	yes	yes	yes	no	no	yes	no	no	yes	none
Wrinch Memorial (Hazelton)	yes	yes	yes	no	no	yes	no	no	yes	none
Sparwood	yes	yes	no	no	no	?	?	no	yes	none
Windermere (Invermere)	No Reply					No Reply		No Reply		
Golden	yes	yes	yes	no	no	yes	no	no	no	none
Tofino	yes	yes	no	no	no	yes	no	no	no	none
Squamish	yes	yes	yes	no	no	yes	no	no	no	none
Princeton	yes	yes	no	no	no	yes	no	no	no	none
Enderby	yes	yes	no	no	no	no	no	no	no	none
Chetwynd	yes	yes	yes (regl service)	yes	no	yes	no	no	no	none
R.W.Large Mem (Vegliela)	yes	yes	no	no	no	yes	no	no	no	none
Dr. Helmcken (Clearwater)	yes	yes	no	no	no	yes	no	no	no	none
Tahsis	yes	yes	no	no	no	No Reply		no	no	none
Stewart	yes	yes	no	no	no	yes	no	no	no	none
Port McNeill	yes	yes	no	no	no	yes	no	no	no	none
Port Alice	yes	yes	yes	no	no	no	no	no	no	none

SUPPORT SERVICES

	DIAGNOSTIC SERVICES					ELECTRODIAGNOSTICS		Child Life	School	Other
	Lab	X-Ray	U/S	Nuc Med	C.T.	EKG	EEG			
Trail	yes	yes	yes	yes	yes	yes	yes	no	yes	none
St Joseph (Comox)	yes	yes	yes	no	no	yes	no	Volunteer	rarely	none
Cowichan	yes	yes	yes	no	no	yes	no	no	yes	none
Peace Arch (White Rock)	yes	yes	yes	no	no	yes	no	Volunteer	yes	none
Surrey Hill	yes	no	no	no	no	no	no	yes	yes	Rehab. Engineer
Queen Alexandra (Arbutus Soc)	no	no	no	no	no	?	?	yes	yes	none
Campbell River	yes	yes	yes	no	no	yes	no	Volunteer	yes	none
Kootenay Lake (Nelson)	yes	yes	yes	no	no	yes	no	no	Visiting Teacher	none
Mills Memorial (Terrace)	yes	yes	yes	no	no	yes	yes	?	yes	none
Powell River	yes	yes	yes	no	no	yes	no	no	yes	none
Fort St.John	yes	yes	yes	? yes	no	yes	no	no	Visiting Teacher	none
Cranbrook	yes	yes	yes	? yes	no	yes	no	Volunteer	yes	none
Kitimat	yes	yes	yes	no	no	yes	no	no	yes	none
G.R.Baker (Quesnel)	yes	yes	no	no	no	yes	no	no	no	none
Shuswap Lake (Salmon Arm)	yes	yes	yes	no	no	no	no	no	?	none
St. Mary's (Sechelt)	yes	yes	yes	no	no	yes	no	no	no	none
Kimberley	yes	yes	no	no	no	?	?		no	none
Bulkley Valley (Smithers)	yes	yes	yes	no	no	yes	no	no	no	none

PROVINCIAL PEDIATRIC HOSPITAL QUESTIONNAIRE APPENDIX C3

GENERAL DISCUSSION OF FINDINGS

As the services available for children in many of the hospitals in the province were not known in any detail, the Steering Committee of this Study drew up and sent out a questionnaire (Appendix C1). Responses were received from 54 hospitals, including virtually all hospitals with 10 or more pediatric beds. In spite of a pre-test, some of the questions were obviously ambiguous to some of the respondents, and in others, the answers were not always comparable with those provided by other institutions. The results were tabulated, with interpretation of unclear or incomplete answers by Dr. Thomson who apologises for any mistakes or misunderstandings introduced thereby.

The tabulated results in Appendices C2, C3, C4 and C5 show the detailed responses; only the main themes are covered in this Chapter.

Volumes

26 hospitals provided more than 1000 days of acute patient care to pediatric patients in 1988 - 89; 28 if the rehabilitation patient days at Sunny Hill and Queen Alexandra are included. Only 17 treated more than 500 pediatric cases on an inpatient basis in the same year.

Utilisation Rates

As discussed in Chapter II, admission rates and patient days per 1000 population tend to be higher in the rural areas than in the cities. Of the 16 L.H.A.s with > 100 cases and/or 500 patient days/1000 population, all but two of the hospitals were more than 250km from the nearest larger, regional centre. The two exceptions (Ladysmith and Cowichan) had more than 100 cases/1000 population admitted per annum, but well under 500 cases. As mentioned before, there may well be reasons for higher admission rates, related to distances, home circumstances and other such factors, quite apart from the (usually) greater availability of beds. It should also be noted that a high utilisation rate refers to the <u>population</u> rates, regardless of where the admissions took place. Thus utilisation rates for Cowichan L.H.A. residents include admissions not only to Cowichan hospital, but also to Nanaimo, Ladysmith, Duncan, Victoria and Vancouver, as well as any chance admissions to other hospitals* in B.C.

None of the hospitals outside the Vancouver area reported any difficulty in admitting children to hospital.

Of the children admitted, most hospitals estimated the majority to be emergencies. Some specifically separated medical admissions (almost all emergencies) from surgical cases (almost all elective). This split may explain the few hospitals reporting less than 50% of cases as emergencies.

A BEDS

Pediatric Unit

Few of the hospitals other than the specialised children's hospitals (B.C's Children's Hospital; Sunny Hill Hospital and Queen Alexandra Hospital) have a pediatric unit reserved only for the use of children. Virtually all of the units which were either exclusively used by children or rarely had adults on the unit had patient case loads of more than 5000 days per year (0 -14 years of age). An exception is Penticton, with 2500 pediatric days per year and a 'children-only' unit. In all other units, barring the very small 2 or 3 bed wards that cannot be properly regarded as a pediatric 'unit', the pediatric beds were often used for adults when not needed for children.

Only Kelowna and Penticton reported any of their beds as specifically for adolescents, and only Victoria has a separately designated pediatric I.C.U.

Age Limits

While some hospitals had no formal policy, and the range of those that did went from 5 years of age to 19, the commonest upper limit was 14 years old. **Five** hospitals accepted children up to age 19; 4 up to age 18; 2 to age 17, 3 to age 16 and 2 to age 15. In general, the larger the pediatric unit, the higher the age limit, which may indicate an ability to accept adolescents which smaller units cannot cope with, or an attempt to keep up volumes in what has been a shrinking service. (An exception to this rule is BCCH, where the pressure of workload has lead to a decrease in the age limit from 19 to 17 years). In many cases, there is no absolute cut-off age, with the individual case being handled in whatever way is appropriate **for the required** necessary care in the circumstances.

B MANPOWER

Pediatricians

Apart from the 3 specialist institutions, 26 hospitals reported having at least one pediatrician on active staff. In one case, the pediatrician was described as 'visiting'. Eleven of the hospitals had only one pediatrician, two reported 2 on active staff. As there is always some movement of medical staff, these figures are likely to change from time to time, but probably fairly represent the distribution of pediatric manpower.

Outside the Greater Vancouver and Capital Districts, only 5 hospitals reported 3 or more pediatricians on active staff - Royal Inland in Kamloops, Vernon, Kelowna, Prince George and Nanaimo. Within the GVRHD, 7 hospitals reported more than 3 pediatricians on active staff - Lion's Gate, Burnaby, Richmond, Royal Columbian, Mt. St. Joseph's, St. Mary's and Surrey.

The volume of pediatric cases and patient days does not seem to fit particularly well with the numbers of pediatricians. Chilliwack reports over 700 cases and nearly 3000 patient days in the year, but supports only one pediatrician, whereas Vernon, with nearly 850 cases and less than 2700 patient days supports three pediatricians.

All of the hospitals seeing 500 or more cases in the year had a pediatrician on the active staff, as did 9 other hospitals with lower caseloads - one hospital with an active pediatrician admitted less than 200 cases per year. Four hospitals with more than 1000 pediatric patient days in the year did not have a pediatrician.

Of the hospitals without pediatricians, Campbell River and Fort St. John are the largest, with a little under 500 cases per year and near 1500 patient days. Quesnel also approaches 500 pediatric cases per year, with fewer patient days - 1250. In general, it would seem that communities that generate many fewer than 500 cases per year are unlikely to attract and retain a pediatrician, but Sechelt, with under 200 cases per year has had a good resident pediatrician for many years, so the rule is by no means absolute.

Of the general hospitals, only Victoria has a pediatrician in the hospital 24 hours per day. With 8 pediatricians on active staff, it also has more manpower than any other institution, although Royal Columbian cites 7 pediatricians on active staff, and Surrey 5.

The service provided by a single-handed pediatrician is usually a testament to their dedication in providing 24 hour cover, 7 days a week; but inevitably, they cannot be ever-present. Information on the pediatric skills of Family Practitioners was not collected (note the difficulty in establishing the pediatric training of specialists) but undoubtedly, many pediatric units in smaller hospitals are covered by interested family physicians.

Specialists

Few of the general hospitals mentioned pediatric specialists on staff. Outside of the Vancouver and Victoria areas, the number is very small. Surgeons are the most frequently cited specialists, with orthopedics and general surgery being named by 3 and 5 hospitals respectively. Only three hospitals reported anaesthetists with special training or experience with children. Child psychiatrists are named by 7 hospitals, 3 of them outside the Vancouver/Victoria regions. The validity of these data is uncertain, as the level of experience and qualifications was not reported in many cases, but subspecialisation appears to be rare outide the major centres.

Nursing Staff

Most hospitals with a pediatrican on staff reported having nursing staff assigned to the pediatric unit. The exceptions were the two hospitals with fairly high pediatric volumes and no pediatrician - Campbell River and Fort St. John.

Apart from BCCH and the two other pediatric hospitals, only 3 hospitals reported a nurse on staff with post basic certification in pediatrics. Twenty of these hospitals reported 1 or more nurses with more than 5 years experience in pediatric nursing. Many of the larger hospitals outside the Vancouver area had a large proportion of their pediatric nursing staff with 5 or more years experience - i.e. a stable and expert staff.

Twelve hospitals reported having staff with more than a year's experience of working in a tertiary care pediatric hospital.

In general, it would seem that formal qualifications in pediatric nursing are very sparse, but that many nurses on pediatric units have extensive experience, and appear, in this superficial review, to deliver competent care.

Other Health Professionals

Few hospitals reported that they had on staff physiotherapists, occupational therapists, social workers, psychologists or respiratory technologists with special training in the care of children. Of those that did, none specified the qualification or nature of the special training, so it is hard to judge the degree of comparability in the replies. Outside the 3 specialist hospitals and the GVRHD, only Royal Inland (Kamloops) and Bulkley Valley (Smithers) hospitals reported staff in these departments as specially trained. (Note: Specialist staff also work in the Victoria General Hospital, although not reported as such in the questionnaire response.) Two other hospitals mentioned having a staff member with special training in another area - Child Life in one case, and Family Therapy in the other.

Within the GVRHD, only Lion's Gate, Surrey and Mt. St. Joseph reported staff with special training in the care and treatment of children.

D SPECIAL SERVICES

A series of questions were asked concerning the services that each hospital could provide for children. Where the age of the child was likely to be a significant factor - e.g. under 1 month of age, over a year, etc, - the questions were broken down to ask about each group separately.

Chemotherapy

Hospitals were asked if they provided I.V. chemotherapy to children on a regular basis, and if so, whether on an inpatient and/or outpatient basis. Seventeen hospitals indicated that they did, and an additional hospital which did not answer the question is known to provide the service. All but three provided it both on an inpatient and an outpatient basis. Of the three, two provided it on an outpatient basis only, the third only for inpatients.

A notable feature of the responses is the geographic distribution. **None** of the GVRHD hospitals provide this service except BCCH, whereas outside that area, almost every hospital with a pediatrician on active staff **did** provide it. The exceptions were Chilliwack, St. Mary's, Sechelt, and St Joseph's, Comox, where chemotherapy was noted as being provided 'rarely' on an outpatient basis.

Total Parenteral Nutrition

No hospital provided this service on an outpatient basis except BCCH. Eight hospitals apart from Children's provided the service for inpatients. Again, the geographic pattern was that of no services in G.V.R.H.D. other than at BCCH (except for service in the SNICU at Royal Columbian), but it is provided on a regular basis by 6 of the larger hospitals outside the G.V.R.H.D. and by another occasionally.

Respiratory Therapy

The great majority of hospitals reported that they offered respiratory therapy to children both on an inpatient and outpatient basis. Among these were some of the smallest institutions, where the treatment would almost certainly be provided* by a nurse rather than a technologist. There is no clear pattern either by geography or size.

Intubation

Hospitals were asked if a child could be intubated, and if so, whether on an emergency basis, or electively. The answers were subdivided by age into: neonates (<1month), (>1 month, < 1 year) and children (over a year old).

Most hospitals performing any surgery would intubate a child over 1 year old. A commonly reported age 'cut-off' was 3 years of age. Of the 40 hospitals reporting that they would intubate a child, the majority - 24 - reported that an infant over 1 month of age would also be intubated if

necessary. Sixteen hospitals also reported that a neonate could be intubated.
Of this latter group, some hospitals are quite small, one of them - Fort St. John - being without a resident pediatrician. It is assumed that in these institutions, where only the most basic of procedures (eg circumcision) would be likely to be performed on a neonate, the intubation would be on an emergency basis only. Of the larger regional hospitals, only Prince George reported that intubation of the neonate was not performed, but it is known that intubation <u>will</u> be performed in the case of a life-threatening situation.

Ventilation

A second set of questions asked about short and long term ventilation of children, again at different ages. There is a clear gradient in the responses. The smaller the hospital, the less likely it is to ventilate younger children or to maintain children of any age on a ventilator. Twenty hospitals indicated that ventilation of neonates could be carried out, 12 of them on a short term or emergency basis only. It is likely that a number of hospitals not qualifying their replies also provide the service only in emergencies. Another three hospitals indicated that they could ventilate an infant over 1 month of age, and an additional 4 would ventilate children over 1 year of age.
In practice, it seems unlikely that many of the hospitals provide long term (>48hours) ventilator care for any children under a year of age, when hospitals the size of Kelowna and Nanaimo only report doing so on a short term basis.

Oximetry and Blood Gases

Hospitals were asked if they provided oximetry outside the OR/PAR, and 31 said that they could. Thirty six indicated they could do blood gases, although some reported doing so only rarely.

Intravenous Therapy

All of the hospitals would start an I.V. on a child, with the exception of the two rehabilitation institutions. 7 indicated they did not start I.V.s on children under a year of age, and seventeen did not report starting I.V.s on neonates.

E AMBULATORY CARE PROGRAMS

Questions were asked concerning outpatient clinics, special facilities for children in the Emergency rooms, and Day Surgery and Day Care Programs.

Organised Outpatient Clinics

Fifteen hospitals other than the three specialised pediatric hospitals reported having one or more organised outpatient clinics. Twelve reported holding diabetic clinics, with an additional hospital reporting no clinic, but a Diabetic Day Care Program. Penticton and Victoria reported holding oncology clinics, and Surrey reported an adolescent clinic. Victoria also reported holding clinics for Children with Cystic Fibrosis and for those with Myelo-Meningocele - this latter in cooperation with Queen Alexandra.

No hospital other than BCCH reported holding special clinics for children with mental handicaps. Other specialised clinics reported by hospitals include Asthma (Victoria, Kelowna and Vernon); General Nutrition (Surrey and Penticton); Growth Hormone, Cleft Palate Seizures and Scoliosis (Victoria*); Sexual Abuse (Burnaby); Renal Transplant Follow-up and Hemophilia (Royal Inland Hospital); Special Seating Clinic (Prince George in association with Sunny Hill); Home Apnea (Vernon) and an Orthopedics Special Needs Clinic at Kootenay Lake Hospital in Nelson. In addition, Fort St. John and Bulkley Valley Hospital
(Smithers) report clinics held by an allergist.

As well as the clinics and programs reported in this section of the Questionnaire, some responses to a question on Other Support Services are properly reported in this section. Cytogenetic Services were available in two hospitals - Royal Columbian, New Westminster and Victoria - which implies the provision of genetic counselling. Victoria also reported the existence of special child rehabilitation services - a reference to Queen Alexandra Hospital and the other services of the Arbutus Society. Sunny Hill noted, in addition to the 13 subspecialty clinics, the existence of a Rehabilitation Engineering service. Lion's Gate reported a Child Crisis Service and an Abuse Program. Vernon noted the presence of an extended care unit for children (Poulsen) in the community - and run by the hospital

Emergency Departments

Few hospitals reported that they had a special area for children in their Emergency Department. Apart form BCCH, 6 hospitals reported such an area (Victoria, Royal Columbian - New West-minster, Lion's Gate, Burnaby, Surrey and Penticton). Two other hospitals (Vernon and Peace Arch - White Rock) reported having a crib in their Emergency Department.

Day Surgery

Thirty four hospitals reported they performed some procedures on a day surgery basis. Of these, some were qualified with an indication of minor procedures only 'dentals'; 'Ts & As'; 'Cystos and Circumcisions'. Volumes for each hospital may be seen in Table 3B, which lists all day surgery done by hospitals in 1988 - 89.

F SUPPORT SERVICES

Hospitals were asked about the diagnostic services available for children and about the extent of support services such as School and Child Life. No questions could be asked about the extent of the skills of the care providers, nor the range and quality of the work performed on children.

Laboratory

Of all the hospitals which replied to this question, all but one indicated that they could take blood from neonates and analyse most specimens by micro-methods. (Queen Alexandra is an exception, with laboratory services being provided from the Victoria General Hospital)

Diagnostic Imaging

X-Ray All hospitals replying to this question reported performing X-Rays on children with no age limit.

Ultrasound Thirty eight hospitals reported performing Ultrasound exams on children of all ages. In addition one hospital reported a regular travelling ultrasound clinic.

Nuclear Medicine Twelve hospitals reported performing Nuclear Medicine studies on children and one reported a regular travelling service. Three other hospitals may also provide this service, but the response was ambiguous.

CT Scanning Thirteen hospitals provide this service for children.

Electrodiagnosis

Almost all hospitals were able to perform an EKG on a child. **Six** reported they could not/did not, and another 6 gave either no reply or an ambiguous response.

In contrast, only 13 hospitals provided an EEG service, almost all in the regional hospitals and the larger GVRHD community hospitals. Mills Memorial Hospital (Terrace) and Trail Regional Hospital are the two exceptions to this generalisation.

Child Life Service

Only three hospitals reported a formal, organised child life service - BCCH, Victoria and Prince George. An additional 7 hospitals reported a volunteer-run child life program including some hospitals with relatively small caseloads, such as Peace Arch (White Rock)*, Cranbrook and Campbell River.

School Services

In contrast, thirty Two of the hospitals reported that teachers were available. Seven qualified their response as being part time, by visiting teacher or 'rarely'.

G COMMUNITY SERVICE

The responses to these questions, since they were aimed at communities rather than hospitals, were grouped for review by geographic region, not hospital size. The services specifically enquired about in the questionnaire were Physiotherapy, Occupational Therapy, Psychology, Genetics, Infant Development Programs, Special Needs Play Schools, Hearing and Speech Services and Mental Health Services.

The responses did not usually indicate the extent to which the services were available, or the depth of expertise present if they were available. Nonetheless, the results show, superficially, the extent to which residents of particular communities can obtain health services without travelling unreasonably far.

Greater Vancouver Area and Fraser Cheam Region

Not surprisingly, most of the services asked about are available in this largely metropolitan area. Genetics was the least available service - something which is true in all other areas -and can be accounted for by the highly specialised nature of the service.

Relatively few other services were mentioned, with the exception of a very complete listing from the Chilliwack area, where there are many community-based self-help and support groups. To what extent this represents a true greater availability in this area (and if so, whether it reflects the more rural, closely knit
type of living there), or whether it is the result of more thoughtful reporting is not known.

Vancouver Island

Availability of the services on the Island is distributed North/South, with all services being accessible in the southern parts, and fewer in the northern, less populated, areas. Genetics was again not available in most communities. The absence of Mental Mealth Services in Campbell River may reflect the absence of specialised pediatric mental health programs, but the simultaneous absence of a reported Infant Development Program and Special Needs Play School is surprising. Again, one area (Comox) reported extensive other programs, mainly in the School system.

Okanagan Valley and Southern Border

The Okanagan Valley communities seem well served in all services, with the smaller community hospitals reporting the fewest available programs.

The Kootenays

Physiotherapy, Infant Development and Mental Health Services are available in all the communities that reported in this survey. Genetic services are not available in any of the centres.

Kamloops and Thompson

The community on Kamloops itself is well serviced, as are the more remote areas of Golden and Revelstoke, except for the absence of Mental Health Services in the former. The smaller communities around Kamloops are less well provided, and residents must have to travel to Kamloops or elsewhere for care.

Northern B.C.

Again, the larger centres in Prince George, Smithers, Terrace Fort St. John and Kitimat are fairly well provided. The long distances between communities makes the presence of such services in relatively small centres important. The complete absence of Genetic services is notable, even in Prince George, whereas Mental Health Services appear to be available in almost all communities that reported.

The additional services reported mainly fell into the categories of (often school-based) programs for children with learning disabilities or behavioural problems; drug and alcohol programs, and some specialised programs. It is likely that such programs are more widely available* than reported, since they were not specifically inquired about.

H GENERAL QUESTIONS

Hospitals were asked a number of general questions concerning the extent to which they felt their present services met the needs of their community, areas where services were lacking, their usual referral patterns, the relationship with BCCH and a request for suggestions and comments on how pediatric services could be improved.
The responses were recorded as written, and are shown in Appendices C4 and C5. The first deals with the question of what services are missing and what could be done to improve the child services. The second deals with the relationships with BCCH and what that hospital could do to help other institutions.

Suggestions for Improvement and Services that are Lacking (Appendix C4)

Most hospitals felt they were doing a reasonable job in providing child health care, and were willing to do more. This is to be expected in a survey where only the respondents are quoted: hospitals not interested in pediatric services are less likely to respond.

Psychiatric/Mental Health Services

The most often mentioned service lack was that of adequate child and adolescent mental health/psychiatric services. Over half of the hospitals responding to this part of the questionnaire (26/47) specifically mentioned the need for services in this area, whether psychology services, counselling, adolescents, or programs for dysfunctional families. Of the larger hospitals (over 1000 child patient days per year), 19 out of 26 mentioned this need, including 5 in the GVRHD. The distinction between counselling for families with problems, group homes for adolescents, acute psychiatric care for emergencies and services for Child Development and Learning Disabled children was often difficult to make, but the general thrust was clear.

Educational Services

This theme, which is also touched upon in the next section concerning the services BCCH could provide, was the next most commonly noted area where present performance was inadequate. Sixteen hospitals mentioned the need for some improvement in the educational opportunities available. These varied from proposed better access to degree programs for nurses not in Vancouver, through C.M.E. for GP anaesthetists, to better inservice courses. The suggestion was made that such courses be provided in the community rather than staff having to travel to Vancouver.

Adolescent Services
Ten hospitals specifically mentioned the need for adolescent clinics and other services, such as eating disorders. As well, there were many references to adolescent services, intermingled with mental health and counselling service need comments.

Rehabilitation Therapists
Ten hospitals also mentioned the need for physiotherapy and occupational therapy services for children. One hospital mentioned the need for speech therapy. Psychology services were classed under Mental Health services.

Other Clinical Services
There were many other suggestions of services which were lacking and might be of benefit, but they are not easily codified. Among suggestions for Out Patient Clinics were Diabetic Services (9); General Nutrition (4); Child (Sexual) Abuse clinics and Follow-ups services(3); Asthma (3); General clinics (3); Genetics (3); subspecialist clinics visiting hospitals (2) and a number of single hospital suggestions such as Eating Disorders, Allergies, Very Low Birthweight Follow-up Clinics, and Oncology.
Services requiring expansion included Audiology (3), Child Life and Play Programs (3), Social Work (2), EEG (2), Surgery (2), Special Needs Service (2), a heart monitor loan service (1), and school services for short stay patients (1).

General Support Services:
A number of more general suggestions were made. These included:

- the need for good comparative statistics;
- the lack of a licensing body for counselling services;
- the need for a central supply service;
- a hostel for out-of-town parents +/- patients;
- better Hospital Information System;
- Need for guidelines on policies etc;
- the benefits of having physician offices in the hospital;
- the need for sessional rather than fee-for-service payments
  to physicians for some kinds of clinical work;
  and
- the need for better community services, such as Public Health* teaching in schools, and health promotion generally (3);
- more community services such as Home Care (3)

Hospitals in the GVRHD mentioned the need for regionalisation, decentralisation, and a willingness to provide more pediatric services such as clinics and special diagnostic services.

Relationships with B.C's Children's Hospital
(Appendix 3D)

Most hospital were very satisfied with the service they received from B.C's Children's Hospital, particularly the transport services which are co-ordinated by BCCH staff physicians. There was also fairly universal admiration for the quality of care provided and the amount of information provided to parents. Written health records sent with children transferred back to a local or regional hospital are also judged to be very good.

Where criticism is levelled, it is in the area of general communications, particularly verbal updating of the recipient hospital, forewarning of transfers, checking that the prescribed drugs <u>are</u> available in the receiving hospital etc. Further, while the written communication at the time of transfer is good, and the response to questions and requests much appreciated, the formal transcripts of discharge summaries are noted by a number of hospitals to be slow, arriving well after the patient has arrived home - which can be awkward for the local physician and hospital staff. There is also some evidence of transfers being arranged between physicians but not being fully communicated with the hospital staff - particularly the nursing staff (although this can apply to the physicians in the receiving hospital as well as those at BCCH, and doubtless occurs both ways).

PROVINCIAL PEDIATRIC HOSPITAL UTILISATION STUDY

APPENDIX C4

HOSPITAL QUESTIONNAIRE

Question H 3)

'Relationship with the Children's Hospital of British Columbia

A) What types of cases are currently referred to the Children's from the hospital? e.g. cases requiring pediatric surgery / anaesthesia; All neonatal cases requiring prolonged ventilation; etc

B) How do you rate the service you receive from the Children's Hospital? In what areas is it best, and in which areas could it be improved ?'

Analysis is by hospital size; presence or absence of a pediatrician in the community; and distance from BCCH.

Hospital Size: **1** = > acute 100 beds and / or cases per annum.
2 = < acute 100 beds and / or cases per annum.
3 = Arbutus Society in Victoria and Sunny Hill in Vancouver are dealt with separately.

Pediatrician: **P** = present if living in the community and on Active Staff
0 = no pediatrician residing in the area on active staff

Distance from BCCH : **N** = in GVRHD or Lower Fraser as far as Abbotsford includes Squamish and Sechelt;
F = more distant than that. Vancouver Island communities have 150 km added to distance to allow for ferry.

SUNNY HILL **3;P;N** 400 cases; 8897 days (455/11129 totals)

A) Refers acute and surgical cases, patients needing IVs; special diagnostic testing (CT scanning, X-Rays etc)

B) 'On the whole, very good relationships in all areas'

ARBUTUS SOCIETY **3;P;F** 109cases; 10904days (140/15499 total)

A) Cases are referred to Victoria General Hospital, not directly to BCCH.

B) 'Highly competent intermitent referral service in general from BCCH.'
'Medical Records taking time to respond"
'Pediatric inpatient rehabilitation (cases) received from BBCH. This could (should) be extended'
'Close liaison with Visually Impaired Program at BCCH

ROYAL COLUMBIAN **1;P;N** 1610 cases; 8634 days

A) Cases requiring pediatric Surgery (except hernias) *?* All cases requiring long term ventilation (not funded by government). We care for infants up to approximately one week assisted ventilation and T.P.N.

B) Service prompt - good
Better triaging of patient - I.C.N. patients

GREATER VICTORIA HOSPITAL SOCIETY **1;P;F** 3329 cases; 12222 days (V G H - 3104cases/10862days)

A) Pediatric cardiology; some complex cases.
Cases where pediatric specialist is required - eg endocrinology, allergy problems; complex G.I. problems

B) . Excellent in most cases, areas for improvement include: recognition and support of our services
. Communication and closer liaison
. Improved utilisation of our expertise as a major contributor to the care of pediatric patients and families in B.C.

LIONS GATE HOSPITAL **1;P;N** 1070 cases; 4224 days

A) ICU resp. failure
Complicated neonatal surgery - congenital anomalies
Complex endocrine problems
Complicated cardiac investigations
All neonatal cases requiring prolonged ventilation

B) Excellent infant transport team. Main problem in most cases is overloading at BCCH - often neonatal cases go to RCH or Victoria because the nursery at BCCH is on

diversion. ICU at BCCH is often full hence at LGH we have facilities for cardiac monitoring and oximetry but not for ventiliation. LGH is very adult oriented hence the monitoring is done on the pediatric ward rather than ICU. The Sunny Hill Diagnostic Centre lacks co-ordination with North Shore Education - developmental diagnostic evaluations should be combined with community services for handicapped. Parents of children object to travel (sic) across town during the day for neuro and teaching services.
Psychiatry services are seldom available - on several occasions severe psychiatric problems could not be handled anywhere in B.C. Children's refused patients and they had to be severely sedated until space was found.

BURNABY HOSPITAL **1;P;N** 931 cases; 4302 days

A) Neonates requiring ventilation and/or surgery or intensive care.
Infants under 2 years for surgery
Any child requiring tertiary level care.

B) Lack of available beds at times
Excellent transport team system; responds effectively and efficiently.
Although do not initiate follow-up communications re: status of transferred child, responds well when contacted to keep the parent(s) informed of condition.

ROYAL INLAND HOSPITAL (KAMLOOPS) **1;P;F** 1490 cases; 6090 days

A) Pediatric Surgery
Cases requiring prolonged anaesthesia (not dental)
Investigative e.g. genetics
T.P.N.

B) Excellent response to critical patients
Lab services not adequate - better from Provincial Lab and less costly.
Poor public relations with outlying areas
Should provide more outreach education
Central switchboard a disaster! - too long in response time, mistakes in transfer of info.
Lack of follow-up information with transfers
Poor advanced planning with transfer eg. no call prior to transfer; patients sent after 4pm; no equipment with patient.
Educational information not received even with repeated requests
No mandate to set provincial standards eg. T.P.N.
*Note Most of our educational information and standards are now coming from Alberta, because of their excellent response and outstanding programs.

PENTICTON REGIONAL HOSPITAL **1;P;F** 722 cases; 2458 days

A) Those requiring sophisticated diagnostic investigation (i.e. CT,MRI)
Pediatric Subspecialty referrals eg. cardiology, endocrinology
Complex pediatric surgical cases
Neonates requiring prolonged ventilation

B) EXCELLENT!
Suggest improved communication between departments of nursing (sharing of expertise developed at BCCH)
sharing of policies and procedures and protocols
sharing of patient and parent information literature

SAINT MARY'S HOSPITAL **1;P;N** 452 cases; 911 days
(NEW WESTMINSTER)

A) We do not have a need to refer patients to Children's
*(They would be referred to Royal Columbian)

B) No reply

RICHMOND GENERAL HOSPITAL **1;P;N** 570 cases; 1721 days

A) Infants requiring surgery/anaesthesia
All patients requiring ICU care
Babies requiring prolonged ventilation
Children requiring subspecialist consultations

B) Very satisfactory
Infant transport service should be commended
Long waiting list for psychiatric consultation and child development consultation is a hurdle

VERNON JUBILEE HOSPITAL **1;P;F** 844 cases; 2648 days

A) All neonotes requiring ventilation
Specialised pediatric surgery eg. cardiac, GU, orthopedic
CF Clinic; Myelodysplasia clinic.
Oncology; Metabolic Unit
Near Drownings

B) Excellent
Better communication back to local doctors
As the pediatric head nurse, I would like to see more networking (ie regular contact with Children's re equipment, services available, inservice education and liaison re; cases being referred to them and back from them)
Regards inservice - would like to see teleconference from Children's as we currently subscribe to this from CHEO and Western Ontario (subjects such as ? , behaviour problems, ? ,asthma etc.

CHILLIWACK GENERAL HOSPITAL **1;P;F** 716 cases; 2910 days

A) Ventilation/Respiratory
Cancer treatment
New Diabetics
Cardiac Surgery
Burns
Neurology

B) The service has been excellent. The reports from parents and children regarding the care received have always indicated a high quality of care. Reports received from the hospital are timely and complete. At times we are not informed of a child's transfer back to us and this sometimes causes some difficulty

MOUNT SAINT JOSEPH HOSPITAL **1;P;N** 529 cases; 1919 days

A) Any Tertiary Care
Fractures requiring Surgery
Head injuries
Unusual Investigations
Burns (BCCH or VGH)

B) They always take children referred from our Emergency Department

TRAIL REGIONAL HOSPITAL **1;P;F** 489 cases; 1636 days

A) Children requiring Intensive care.
Neonates with heart disease or requiring prolonged ventilation
Complex sub-specialty cases - eg. surgical cases, neurological problems.

B) Good
Return of Level II neonates

ST. JOSEPH GENERAL HOSPITAL **1;P;F** 456 cases; 1561 days
(COMOX)

A) Ventilatory Assistance
Specialised Surgery
Cardiac Anomalies
Neurological
Investigative requirements beyond our capabilities

B) Response time (though i realise this is dependent upon the availability of flights and 'team') seems to be lengthy - i.e. ski accident - adolescent with multiple injuries including severe head injury necessitated patient waiting in Emergency for 4 1/2 hrs.

COWICHAN DISTRICT HOSPITAL **1;P*;F** 329 cases; 3202 days
* = pediatrician on call 80% of year

A) Pediatric Neurosurgery
Pediatric (?) thoracic surgery
Neonatal cases as above and other neonates when Victoria full
Oncology services
Complex subspecialty cases

B) Service is overall very good
Problems arise in communication - i.e. letting us know what is happening with patient, notifying regarding discharge plans and even notifying that patient is discharged with complex problems.
I would value travelling clinics where a visiting pediatric cardiologist or neurologist (examples only) might visit the area twice a year or so.
Waiting lists for some services are excessive.
Relationships with individual physicians are excellent in general though one or two are very difficult to get hold of.

PEACE ARCH DISTRICT HOSPITAL **1;P;N** 276 cases; 628 days
(WHITE ROCK)

A) Any child with severe respiratory, cardiac or multi-system problem.
All major surgeries
Any child requiring 1:1 nursing, or life-threatening situations.
Any newborns less than 35 weeks gestation
Any child requiring ventilation.

B) Service is generally satisfactory.
Transport team is very slow in arriving, although when they do arrive, excellent.
Excellent involvement of family in child's care
Good resource centre for information or treatment,

CAMPBELL RIVER AND DISTRICT GENERAL HOSPITAL **2;0;F**
473 cases; 1489 days

A) Newborn Surgery
Oncology, Neuro, cardiology, endocrinology
diagnostic service used - especially for multiple handicaps

B) Transfers are neow well organised
Feedback is delayed, sometimes non-existent

KOOTENAY LAKE DISTRICT HOSPITAL **2;P;F** 288 cases; 774 days
(NELSON)

A) Ventilation
Other than general surgery
diagnosis involving more equipment than we have available

B) Very good

MILLS MEMORIAL HOSPITAL (TERRACE) **2;P;F** 607 cases; 3125 days

A) Neonatal for ventilation
Surgical - neonatal, urologic and other complex
Medical patients - eg. cardiology, difiicult seizures etc

B) Neonatal Transport team excellent
Poor communication/feedback on transferred patients - physicians poor at communicating progress.
Service provided by Children's Hospital is excellent in most areas.

POWELL RIVER GENERAL HOSPITAL **2;P;F** 263 cases; 799 days

A) Special diagnostic procedures are ventilated infants and children.
Any child requiring more intensive care than we can provide.

B) Excellent service - staff have always been most helpful with individual cases.

FORT ST. JOHN GENERAL HOSPITAL **2;0;F** 481 cases; 1448 days

A) Neonatal patients go to Edmonton
Major referral is for acute diagnostic or medical management problems.
Some outpatient facilities used eg. GE (?) clinic, Seizure clinic

B) Good service
Improve - communications.There is a serious delay in receiving discharge summaries. This directly affects patient care. It is a big problem to G.P.s in isolated area, I feel.
- Access (answer to question H1 - the respondent took the question to refer to BCCH rather than to his/her own hospital)
The <u>major</u> deficiency is with bed availability. Planned admissions are cancelled at short notice which is a major inconvenience for a parent/family when they have had to book time off work, arrange baby-sitting for sibs and buy airline tickets to travel 800 miles

CRANBROOK REGIONAL HOSPITAL **2;P*;F** 455 cases; 1570 days

* Pediatrician available Mon-Fri minus out-of-town clinics
Weekends are 'hit and miss'

A) Most cases are refered to Calgary. Neonatal critical care cases that Calgary cannot accept on an occasional basis. Children requiring immunologic, hemolytic (sic) studies and care.

B) On the rare occasion it is required, very good. We are always impressed by the teaching done to parents, and how well-informed they are regarding special care requires, the specifics of their child's condition etc.

KITIMAT GENERAL HOSPITAL **2;0*;F** 341 cases; 1037 days
* = Pediatrician 2 days a week

A) Cases requiring diagnostic workup not available here i.e.
CT scan
Cardiac patients
Specialised surgery/Consultants
TPN
Any ventilated infants

B) Quick response by Emergency transfer Teams
Beds always appear available
Posistive feedback from parents returning to our community
Communication could be improved.
Updating of our staff on current trends.
Provide education for our staff i.e. chemotherapy; care of central lines; and other specialised treatments

G.R. BAKER MEMORIAL HOSPITAL (QUESNEL) **2;0;F** 481 cases; 1245 days

A) Neonatal Cases requiring Ventilation
Children under 2 years requiring surgery
New diabetics

B) Excellent - neonatal transfer

SHUSWAP LAKE GENERAL HOSPITAL (SALMON ARM) **2;0;F** 172 cases; 425 days

A) No response

B) No response

KIMBERLEY AND DISTRICT HOSPITAL **2;0;F** 111 cases; 356 days

A) Because of our geographic location, most cases are referred to Calgary (Alberta)

B) No response

BULKLEY VALLEY DISTRICT HOSPITAL (SMITHERS) **2;P;F** 349 cases; 1022 days

A) Respiratory problems
CVS;CNS;Surgery
CT and (?) ECG (I think he means EEG) go to Prince George

B) Service is good, but better patient information back or when patient is in Children's Hospital would be helpful and nice to get.

SOUTH OKANAGAN GENERAL HOSPITAL (OLIVER) **2;0;F** 99 cases; 162 days

A) Cases not usually referred directly
Accidents i.e. spinal injuries

B) No experience

100 MILE DISTRICT GENERAL HOSPITAL **2;0;F** 170 cases; 432 days

A) Pediatric patients on peritoneal dialysis
All neonates requiring ventilation - some may go to Royal Inland Hospital (Kamloops)

B) Not enough Neonatal beds available - smetimes a problem to get a bed.
Usually provide good service - providing information to nursing staff etc.

BOUNDARY HOSPITAL (GRAND FORKS) **2;0;F** 88 cases; 205 days

A) Blood exchange
All neonates who experience difficulty

B) Very good

BURNS LAKE AND DISTRICT HOSPITAL **2;0;F** 212 cases; 616 days

A) Neonates

B) Transport Teams - excellent

LADYSMITH AND DISTRICT GENERAL HOSPITAL **2;0;F** 95 cases; 191days

A) Children would lkely first be traansferred to the Nanaimo Hospital and specialist pediatric care and in turn if need be the child would be transferred to Vancouver Children's

B) No complaints

QUEEN VICTORIA HOSPITAL (REVELSTOKE) **2;0;F** 80 cases; 164 days

A) Complex neonates
Complex children who can't be served in Kamloops or Kelowna
Cancer patients

B) A directory of services, and who to contact for referral would be most helpful
Improved communication when a child is sent home - i.e. a discharge summary promptly!

WRINCH MEMORIAL HOSPITAL (HAZELTON) **2;0;F** 156 cases; 770 days

A) Those that Smithers and Terrace can't handle

B) Good

SPARWOOD GENERAL HOSPITAL **2;0;F** 354 cases; 1004 days

A) All our referrals go to Alberta Children's Hospital as we are considerably closer compared to Children's Hospital in Vancouver

WINDERMERE DISTRICT HOSPITAL (INVERMERE) **2;0;F** 100 cases; 242 days

Letter - no questionnaire filled in.

A) Referrals go to Cranbrook and Alberta Children's Provincial General Hospital in Calgary

GOLDEN AND DISTRICT GENERAL HOSPITAL **2;1;F** 170cases; 343days

A) Main referral is to Alberta.
Cases transferred to BCCH in past year - neonatal congenital cardiac problem and premmie to NICU

B) Numbers inadequate to assess

TOFINO GENERAL HOSPITAL **2;0;F** 129 cases; 460 days

A) Any cases which require intensive intervention and monitoring.

B) We do not receive follow up reports on the progress and/or outcome of referred children. It would be beneficial to improve communications in this area.

SQUAMISH GENERAL HOSPITAL **2;0;F** 152 cases; 289 days

A) All services requiring specialist attention

B) Excellent

PRINCETON GENERAL HOSPITAL **2;0;F** 64 cases; 122 days

A) Depends on physician preference, number of openings in Penticton, weather conditions for transport etc

B) Good
Have not had enough exposure to their services to comment on specific areas.

ENDERBY AND DISTRICT MEMORIAL HOSPITAL **2;0;F** 66 cases; 174 days

A) Burn cases - usually to Vernon as initial transfer

B) Telephone resource centre - very good
Have been used for practice standards and nursing care plans
Have not experienced any problems when seeking resource information

CHETWYND GENERAL HOSPITAL **2;0;F** 156 cases; 427 days

A) Major trauma cases
Congenital Anomalies
Cancer patients
Neonatal patients

B) Very Good
We are very impressed with service and have no complaints
We strongly urge no change in quality of care or funding at the Children's Hospital

R.W.LARGE MEMORIAL HOSPITAL (WAGLISLA) **2;0;F** 89 cases; 178 days

A) Yes Yes Yes

B) Frustrating due to diversion
Excellent feedback from the patients, physicians and hospital records

DR. HELMCKEN MEMORIAL HOSPITAL (CLEARWATER) **2;0;F** 46 cases; 70 days

A) We refer all our cases to specialists at Royal inland Hospital, Kamloops. They would be referring to you as applicable.

B) N/A

TAHSIS HOSPITAL **2;0;F** 16 cases; 32 days

A) Pediatric Surgery/Anaesthesia
All cases requiring ventilation
Respiratory problems
Investigational
Treatment of Congenital defects

B) Good

STEWART GENERAL HOSPITAL **2;0;F** 8 cases; 13 days

A) The above and head and spinal injuries, as well as surgical repair of trauma (amputation)
Children's orthopedics

B) We have no complaints with service received
An improvement in communications even if very simple from the Doctor treating patient so when received back in community we know what support might be required. This could be done even by a medical student.

PORT McNEILL AND DISTRICT HOSPITAL **2;0;F** 94 cases; 223 days

A) Severe Burns
Cardiac problems

B) Discharge Planning. It is important to research the services available in our community - e.g. no home care nursing
It might be appropriate to transfer child back to our facility to ensure that home support is in place !

PORT ALICE HOSPITAL **2;0;F** 25 cases; 57 days

A) Any/All - majority

B) Unable to assess - our numbers are too small

PROVINCIAL PEDIATRIC HOSPITAL UTILISATION STUDY

APPENDIX C5

HOSPITAL QUESTIONNAIRE

H. GENERAL QUESTIONS

'4) Please suggest any other ways in which you think that the paediatric services provided in your community could be improved. You should not only consider specific patient services as noted above, but also support factors, such as:

educational services for staff;
better communication and information systems;
greater regionalisation of services';
better transportation;
etc.

Any suggestions as to who should provide these services would also be useful.'

Answers to Question H1 'Meeting the needs of the Community '- particularly the subsection on services which are seen to be lacking - have been included if they seemed more relevant to this section, and are marked as such.

Analysis is by hospital size; presence or absence of a pediatrician in the community; and distance from BCCH.

Hospital Size: **1** = > acute 100 beds and / or cases per annum.
2 = < acute 100 beds and / or cases per annum.
3 = Arbutus Society in Victoria and Sunny Hill in Vancouver are dealt with separately.

Pediatrician: **P** = present if living in the community and on Active Staff
0 = no pediatrician residing in the area on active staff

Distance from BCCH : **N** = in GVRHD or Lower Fraser as far as Abbotsford includes Squamish and Sechelt;
F = more distant than that. Vancouver Island communities have 150 km added to distance to allow for ferry.

SUNNY HILL **3;P;N** 400 cases; 8897 days (455/11129 totals)

Educational Services for Staff (increased)
Better communication and information systems with networking between centres.
Decrease the waiting lists for services which cannot be obtained elsewhere (eg. specialised programs)
Tertiary pediatric rehab services should be based in one area rather than portions in acute care setting (BCCH) and portions in rehab setting (SHH)
H1 - Services lacking in program outreach - NAS, LTC, NMP, TADS
H1 - Primary(?) Therapy - more comprehensive services required

ARBUTUS SOCIETY **3;P;F** 109cases; 10904days (140/15499 total)

Clinics for appropriate problems
Statistical Comparisons with other areas
Distant Outreach Services
Cross disciplinary reviews re: cost effectiveness etc
H1 - Community support services needed
H1 - Assessment services to meet the needs
H1 - Personnel limitations in in-patient psychiatric service

ROYAL COLUMBIAN (NEW WESTMINSTER) **1;P;N** 1610 cases; 8634 days

Proximity to Children's Hospital in the climate of centralisation weakens scope, viability and potential of pediatric units in metro Vancouver - - some measure of decentralisation would help develop specific areas (for example, child psychiatric services, perinatal cases)
H1 - Mental health services (child psychologist/psychiatrist, psychometric testing)
H1 - Outpatient services (chronic pediatric illnesses)
H1 - Perinatal services
H1 - Child protection services/follow up
H1 - Audiology Services
H1 - Child Diabetic Program

GREATER VICTORIA HOSPITAL SOCIETY **1;P;F** 3329cases; 12222days (VGH - 3104cases/10862days)

No comments received - page missing
H1 - Need for inpatient psychiatry program for acute cases
H1 - 24hour social services - crisis intervention
H1 - Eating Disorders service
H1 - Social support and education for families who have difficulty managing minor health problems (i.e. fever, gastroenteritis)
H1 - Regional genetics service
H1 - Pediatric Allergies

LIONS GATE HOSPITAL **1;P;N** 1070 cases; 4224 days

Weekly education rounds on selected pediatric topics for nurses and interns presented by interns and pediatricians.
The geographic isolation of the North shore from Vancouver makes regionalisation important.
Sharing of services of instructors, both nursing and doctors, from BCCH to regional hospitals, rather than the outlying physicians and nurses going to BCCH
The transport teams from ambulance services are excellent.
Developmental and handicap services should be community based and combined with the education system at the local level.
Psychiatric services need improvement at local levels.
Severe psychiatric services are scarce antwhere in B.C. - recently the only service was in Alberta. Regional residential services would be very helpful.
H1 - Psychiatric services. Definitely in the area of adolescent and child psychiatric residential and treatment centres.

BURNABY HOSPITAL **1;P;N** 931 cases; 4302 days

The hospital could participate:
Pediatric EEG service and expansion of internal and external services;
Expansion of ambulatory care services to include pediatric clinic eg. adolescent, diabetic, general nutrition affiliated with feeding disorder clinic
H1 - Care for the chronic pediatric patient and respite services.
H1 - Treatment for Sexual Abuse victims
H1 - Mental health problems
H1 - No regulatory body for overall counselling. Services should be limited to recognised professionals

ROYAL INLAND HOSPITAL (KAMLOOPS) **1;P;F** 1490 cases; 6090 days

All of the above.
Outpatient clinics - eg. diabetes, BPD.
Adolescent Services - counselling
Psychiatric Services - group home
Physiotherapy and O.T.- special needs children
Improvement in public health services to schools
eg. diabetic.
Expansion of Home Care services
Centralization of supplies
Decentralisation of neonatal patients
eg. > 32weeks to regional hospital
< 32weeks to BCCH
H1 - Surgery; Chemotherapy
H1 - Neonatal T.P.N.
H1 - I.C.U. accommodation in adult unit

SURREY MEMORIAL HOSPITAL **1;P;N** 2367 cases; 7785 days
(Verbal replies at interview re questionnaire design)
All of the above. Would like to be seen as more of a (trusted) partner in the care of children.
Specific mention of need for behaviour disorders clinic
Gaps in mental health Services generally

KELOWNA GENERAL HOSPITAL **1;P;F** 1054 cases; 4168 days
Beds designated for behavioural disorders (regional)
Staff education - more things in the Interior
H1 - Behavioural Disorders service

PRINCE GEORGE REGIONAL HOSPITAL **1;P;F** 197 cases; 9585 days
No reply filled in for this section
H1 - Genetics
H1 - Neonatal Intensive Care follow up
H1 - Better use of our outpatient and inpatient chemotherapy ability
Neonatal Surgery
With interested medical staff we could very much expand or pediatric services - especially if tertiary referral hospital would send newborn and children back so that we could provide care on a more consistent basis.

NANAIMO REGIONAL HOSPITAL **1;P;F** 1218 cases; 4409 days
Communications (see reply to H3)
Heart Moniter Loan Service
Info handouts for parents including transportation costs from ferry and methods such as bus, taxi, and places to stay etc.
H1 - Child Psychiatry (incl. adolescents)
H1 - Critical care of a referral nature

PENTICTON REGIONAL HOSPITAL **1;P;F** 722 cases; 2458 days
Education: outreach programs so greater numbers of nurses can be involved
Communication: (particularly with reference to nurses) - previously addressed
Recognition of capabilities of regional and community hospitals by BCCH would result in improved utilisation of services presently available.
Neonatal/pediatric transportation program is excellent
Development of outpatient clinics in diabetes and asthma would require adequate governmental funding and physicians sessional fees.
Pediatrician office space in regional hospital would improve emergency response time, and daily communication with nursing staff.
H1 - improve Diabetic Day care program
H1 - Asthma day care program funding required
H1 - Psychological Services - children/adolescent
H1 - Speech Therapy services are limited.

SAINT MARY'S HOSPITAL 1;P;N 452 cases; 911 days
(NEW WESTMINSTER) No reply to this question

RICHMOND GENERAL HOSPITAL 1;P;N 570 cases; 1721 days
There is no separate pediatric ward in RGH. And yet the population is growing. RGH needs an autonomous pediatric ward, physically separated from adults.
H1 - General Pediatric acute care should be improved
H1 - Acute care services in the E.R. can be expanded
H1 - Surgery and anaesthesia for infants should be explored
H1 - Pediatric dental works
H1 - Medical social worker
H1 - Occupational Therapy
H1 - Psychology

VERNON JUBILEE HOSPITAL 1;P;F 844 cases; 2648 days
Sexual Abuse Team - Social Services
More services based in the interior - very disruptive for working families to go to the coast
i.e. special clinics; adolescent psychiatric service (short term and long term)
Inservice education - Teleconferences from Children's is a suggestion.
H1 - Counselling for Adolescent psychiatric patients
H1 - Inpatient child psychiatry
H1 - Hospital-based psychologist with pediatric expertise
H1 - school services for illness less than 10 days

CHILLIWACK GENERAL HOSPITAL 1;P;F 716 cases; 2910 days
Degeree program availability for nurses in the Upper Fraser Valley
More professional workshops in Chilliwack
Improved hospital information system
Tertiary care availability closer to Chilliwack
H1 - Adolescent Psychiatric beds
H1 - Diabetic and Asthmatic Clinics
H1 - Oncology program

MOUNT SAINT JOSEPH HOSPITAL 1;P;N 529 cases; 1919 days
Physician service on-site 24hours/day
Emergency Room open 24hours/day
Shared Educational programs with BCCH (medical and nursing as well as other health disciplines)
Shared resources - Pediatric Policy Guidelines, Procedures
Pediatric Lab. Services more affordable (we currently use BCCH, Provincial Lab and St. Paul's Lab)
H1 - Asthma Teaching program
H1 - Feeding/Nutrition Clinic
H1 - Diabetic Teaching

TRAIL REGIONAL HOSPITAL **1;P;F** 489 cases; 1636 days

Educational Services done on a regular basis from BCCH
Reports from patients referred to Vancouver is (sic) extremely slow i.e. 3 months
Regionalisation is very important as mentionedin No. 10 (Question D10, concerning Other Special Services for Children; the answer states :
'We only have one pediatrician on staff which leaves him on call 24 hours 7days per week when there is a ill baby. To regionalise all peds and high risk maternity would increase workload and make enough work for 2 pediatricians. this would be cost effective in equipment and maintaining adequate training staff - i.e. nurses, pediatricians and obstetricians')
No problems with transportation
H1 - Intensive care
H1 - 24hr pediatric cover

ST. JOSEPH GENERAL HOSPITAL (COMOX) **1;P;F** 456 cases; 1561 days

Inservices are always welcomed - especially from a nursing care point of view - i.e. assessment and condition/treatment (usual)
Information - we receive a newsletter which is interesting and enlightening. We would appreciate more factual information - i.e. nursing care of a patient with tetralogy of Fallot.
H1 - Psychiatric counselling - especially for older children/adolescents.

COWICHAN DISTRICT HOSPITAL **1;P*;F** 329 cases; 3202 days

* = pediatrician on call 80% of year
Educational service for non-medical staff could be improved.
Communications especially with Vancouver need to be improved.
At the local level many services - Indian Health, Psychologist, Antenatal, Child Abuse services, and Sexual Abuse Services seem to the writer to be coming from many directions with resultant increase in expense and dilution of the service - the left hand doesn't seem to follow the right.
H1 - Subspecialty consulting
H1 - Child Psychiatry
H1 - Outpatient physiotherapy
H1 - Outpatient Dietary services (except diabetics)
H1 - Child Life programs

PEACE ARCH DISTRICT HOSPITAL (WHITE ROCK) **1;P;N** 276 cases; 628 days

There is a recognised difficulty in retaining peadiatric skills for both nursing and medical staff. The community hospitals could certainly benefit from on site/off site educational programs, improved designated liaison persons at the tertiary care facilities, on-site clinics to maintain chronically ill children in the community.
We certainly appreciate the transportation team being available when a critically ill, unstable condition presents at the hospital.
Meetings should be held with General practitioners and Pediatricians to investigate how much referral occurs from offices, what support services they perceive necessary in the community.
H1 - Diabetic teaching
H1 - Mental Health Services (adolescents)
H1 - Ability to treat critically ill children
H1 - Play and Special Needs programming
H1 - Critically ill children - levels of treatment ability should be defined, otherwise missing services could be provided with increased resource or support networks

CAMPBELL RIVER AND DISTRICT GENERAL HOSPITAL **2;0;F** 473 cases; 1489 days

Travelling education services
Location of a pediatrician here in Campbell River
Designation of pediatric beds
Local Audiology
Pschiatric/Psychological services
Service for learning disabilities

KOOTENAY LAKE DISTRICT HOSPITAL (NELSON) **1;P;F** 288 cases; 774 days

I am not aware of numbers referred directly from Doctors' office.
H1 - Special needs program - physical
H1 - Mental Health for children and Adolescents

MILLS MEMORIAL HOSPITAL (TERRACE) **2;P;F** 607 cases; 3125 days

No response
H1 - Psychiatry

POWELL RIVER GENERAL HOSPITAL **2;P;F** 263 cases; 799 days

Staff Education

FORT ST. JOHN GENERAL HOSPITAL **2;0;F** 481 cases; 1448 days

*** Communication ***

CRANBROOK REGIONAL HOSPITAL **2;P*;F** 455 cases; 1570 days
* Pediatrician available Mon-Fri minus out-of-town clinics Weekends are 'hit and miss'
Educational services for staff
Play Therapy/Occupational therapy
Community teaching (Public Health
Hostel for families from out of town (like the ronald McDonald House)
H1 - Adequate pediatrician coverage

KITIMAT GENERAL HOSPITAL **2;0*;F** 341 cases; 1037 days
* = Pediatrician 2 days a week
Addressed in answers to previous questions
Re-emphasise need for educational services for staff
H1 - All extra services especially social work services and adolescent psychiatry
H1 - Diabetic Day care

G.R. BAKER MEMORIAL HOSPITAL (QUESNEL) **2;0;F** 481 cases; 1245 days
A pediatrician on staff
Nurse trained in pediatric care
Educational services for GP anaesthetists

SHUSWAP LAKE GENERAL HOSPITAL (SALMON ARM) **2;0;F** 172 cases; 425 days
No response

KIMBERLEY AND DISTRICT HOSPITAL **2;0;F** 111 cases; 356 days
No response
H1 - Liaison services may feel they require additional expertise in counselling etc.

BULKLEY VALLEY DISTRICT HOSPITAL (SMITHERS) **2;P;F** 349 cases; 1022 days
Pediatric educational psychologist
Pediatric psychiatric service
Could use second physio/O.T. for school age children
Pediatric cardiac ultrasounds
Pediatric EEG
Pediatric Resp. therapy
Designated pediatric ward with dedicated nurses.
H1 - Transport and cost of transport is of great concern at this time.

SOUTH OKANAGAN GENERAL HOSPITAL (OLIVER) **2;0;F** 99 cases; 162 days
Adolescent services - for children of dysfunctional families, group homes, foster parents; mental health facilities to deal with drug-alcohol abuse

100 MILE DISTRICT GENERAL HOSPITAL **2;0;F** 170 cases; 432 days
No response
HI - Mental health

BOUNDARY HOSPITAL (GRAND FORKS) **2;0;F** 88 cases; 205 days
Staff education
H1 - Occupational therapy; Speech services

BURNS LAKE AND DISTRICT HOSPITAL **2;0;F** 212 cases; 616 days
Our geographic location is our biggest problem affecting
- staff inservice
- transfer of patients
- acquiring support services

LADYSMITH AND DISTRICT GENERAL HOSPITAL **2;0;F** 95cases; 191days
No response

QUEEN VICTORIA HOSPITAL **2;0;F** 80 cases; 164 days
All the above !
Visiting pediatrician would be nice - we may be having this service in the new year.

WRINCH MEMORIAL HOSPITAL **2;0;F** 156 cases; 770 days
(HAZELTON)
All the above - transportation O.K. already
More funding for Mental Health and Child Development

SPARWOOD GENERAL HOSPITAL **2;0;F** 354 cases; 1004 days
H1 - Occupational Therapy; Diabetic Clinic

WINDERMERE DISTRICT HOSPITAL **2;0;F** 100 cases; 242 days
(INVERMERE)
Letter - no questionnaire filled in.

GOLDEN AND DISTRICT GENERAL HOSPITAL **2;1;F** 170cases; 343days
H1 - Transportation problems in Emergency transfers
bureaucratic - emergency health services
meteorologic - 10 - 20% of time air transport cannot be accomplished. We need to be able to cope with tertiary care level problems for up to 24 hours, as it may take that long to effect transport.
H1 - Blood gases and cardiac monitor would enable intermediate level neonatal care.
H1 - On site and off site short term training would alow cadre of nursing staff with neonatal expertise.
Ability to treat and stabilise and maintain severely injured or ill children pending transport availability.
These services should be developed, planned and implemented <u>locally</u>, not layered from above
Travelling clinics are of limited use as pediatric care locally available and good ongoing speciality clinics available at ACH.

TOFINO GENERAL HOSPITAL **2;0;F** 129 cases; 460 days
Transferring patients out of our facility is a concern (air transfers). We frequently experience long delays before the patient is finally en route. This could seriously jeopardize a patient's chance for recovery.

SQUAMISH GENERAL HOSPITAL **2;0;F** 152 cases; 289 days
Health promotion within the community

PRINCETON GENERAL HOSPITAL **2;0;F** 64 cases; 122 days
A greater amount of education for present staff would be of benefit.
At times it is difficult to access transport teams (i.e. that can arrive on short notice)
H1 - Infant Development Program
H1 - Specialised physiotherapy

ENDERBY AND DISTRICT MEMORIAL HOSPITAL **2;0;F** 66cases; 174 days
We require only limited pediatric supports due to our referral system

CHETWYND GENERAL HOSPITAL **2;0;F** 156 cases; 427 days
This is an 18-bed hospital serving a population of app. 7000 therefore better communication and information systems and better transportation are our priorities
H1 - Availability of pediatric surgeon and anaesthetist

R.W.LARGE MEMORIAL HOSPITAL **2;0;F** 89 cases; 178 days
(WAGLISLA)
Communication is operator dependent and varies according to the physician
Educational services usually degenerate into Ivory Tower browbeating and oppresion of the generalist.
Regionalisation of services may be of great assistance for paramedical services i.e. podiatry, occupational therapy
Transportation will always be difficult here and is primarily dependent on our population number
H1 - psychological
H1 - occupational therapy
H1 - Mental Health
H1 - Genetics
H1 - Nutrition Counselling
H1 - Prevention of 'bottle baby syndrome'
H1 - Visiting teams on a regular basis could help achieve a good result (for better services)

DR. HELMCKEN MEMORIAL HOSPITAL (CLEARWATER) **2;0;F** 46 cases; 70 days

Obtaining a Mental Health service facility
More parenting skill classes offered
We have a good facility to refer to - i.e. neonatal team that would come up etc.
We have inservices om pediatric care/problems and conditions with speakers such as physicians or by facilities such as 'tele-conferences'
H1 - Mental Health
H1 - Day Care Centre

TAHSIS HOSPITAL **2;0;F** 16 cases; 32 days

Delays are often caused by transportation problems mostly due to the weather.
We would appreciate any distance or 'travelling' educational services that are available for staff.
A pediatrician located in Campbell River would greatly enhance service to this area
At Children's Hospital I think there is room for a greater understanding of the patient care environment in a small geographically isolated hospital. (This comment would apply to all tertiary care referral hospitals)

STEWART GENERAL HOSPITAL **2;0;F** 8 cases; 13 days

We could use a better transportation service but this is unlikely due to our area and low population.
No flight service
Have few pediatric services required, mostly admissions are of croup or asthma related nature and very few repeat admissions

PORT McNEILL AND DISTRICT HOSPITAL **2;0;F** 94 cases; 223 days

Education for hospital staff/physicians/Ambulance attendant for Pediatric emergency with MVA trauma
H1 - We are not set up for longterm pediatric admissions as we do not have a specific pediatric unit with playroom etc.
H1 - Orthopedic problems requiring anything other than Bryant's traction
H1 - Any ICU case

PORT ALICE HOSPITAL **2;0;F** 25 cases; 57 days

No response
It would be impossible to meet averone's needs. we screen, assess and refer to appropriate agencies.

STANDARDS FOR PEDIATRIC ANAESTHESIA

INTRODUCTION:

The Section of Anaesthesia of the B.C.M.A. was asked by the Provincial Pediatric Hospital Utilisation Study Steering Committee to develop a "Standard of Practice" that should be attained to guarantee safe and efficient Pediatric Anaesthesia in the province's hospitals. The document which follows is the result of the work of the 3 person committee appointed by the Section.

REASON:

The "great pressure" felt at BCCH for both inpatient and outpatient services has stimulated the Ministry of Health to look at increased utilisation of pediatric facilities at other provincial hospitals and if necessary, to update the standards of Anaesthetic services.

BASIC PRINCIPLES AND TRAINING

Ideally, physicians practising Pediatric Anaesthesia should be certified in Anaesthesia. A six-month period of pediatric Anaesthesia plus Pediatric ICU and SCN, with a minimum of three months Pediatric Anaesthesia is recommended during the residency training programme.

Some departments may be dependent on non-certified anaesthetists. It is recommended that these physicians should have one year of Anaesthesia Residency with three months in Pediatric Anaesthesia.

All physicians practising Pediatric Anaesthesia should continually update their knowledge of Pediatric Anaesthesia and resuscitation.

ANAESTHETIC EQUIPMENT

Any hospital practising Pediatric Anaesthesia should adhere to the minimum standards of equipment and monitoring as set out by the Canadian Anaesthetist's Society.

The most important of these is the continual presence of the anaesthetist at all times during the anaesthetic.

Available for each anaesthetised child:

Mandatory:

1. Apparatus to measure blood pressure
2. Stethoscope
3. E.K.G.
4. Oximeter
5. End-tidal Co2 analyser
6. Apparatus to measure temperature
7. In-line O2 analyser
8. Anaesthetic Record.

Immediately available:

1. Defibrillator with pediatric paddles
2. Resuscitation drugs - in pediatric doses
3. Ability to ventilate patient intra and post operatively
4. Peripheral nerve stimulator
5. Warming devices for fluids, during transport and in the operating room.

PEDIATRIC FACILITIES

Tertiary Care - B.C.C.H.

Peripheral hospitals divided into two sub-groups:

TYPE 1: Hospitals which handle more than 1000 pediatric surgical cases per year.

IT IS RECOMMENDED THAT ELECTIVE PATIENTS IN ASA CATEGORIES 1, 2 AND 3 BE TREATED IN THESE FACILITIES, PLUS EMERGENCY PATIENTS.

TYPE 2: Hospitals which handle less than 1000 pediatric surgical cases per year.

IT IS RECOMMENDED THAT ELECTIVE PATIENTS IN ASA CATEGORIES 1 AND 2 (POSSIBLY ASA3A SUCH AS A STABLE DIABETIC) + EMERGENCY PATIENTS BE TREATED IN THESE FACILITIES, BUT NO HIGH RISK PEDIATRIC CASES - e.g. PREMATURE INFANTS, WOULD BE ANAESTHETISED AT THESE HOSPITALS.

In Type 1 hospitals, there should be some degree of sub-specialisation, with those wishing to perform Pediatric Anaesthesia receiving extra training if necessary.

In Type 2 hospitals, it is recommended tha a designated physician be nominated to oversee requirements for Pediatric Anaesthesia in order to ensure standards are maintained and upgraded as necessary.

In small hospitals doing infrequent Pediatric Anaesthesia, provided transfer does not compromise patient care, it is recommended that emergency cases be transferred to a suitable facility. It is possible that elective pediatric cases (not major procedures) could be performed at a small hospital with a team of pediatric specialists coming in at a regular prearranged interval.

QUALITY ASSURANCE

Monitoring of the practice of Pediatric Anaesthesia should be impoved by case presentations, chart reviews and internal audits on a regular basis.

SUMMARY:

THE COMMITTEE RECOMMENDS THAT, IF THERE IS TO BE INCREASED UTILISATION FO PEDIATRIC FACILITIES AT PERIPHERAL HOSPITALS, MAJOR PEDIATRIC CASES SHOULD ONLY BE PERFORMED IN HOSPITALS WITH A PEDIATRIC SURGICAL CASELOAD OF 1000 CASES PER YEAR OR GREATER. THE ANAESTHETIST RESPONSIBLE FOR ANY PEDIATIRC ANAESTHETIC SHOULD BE SATISFIED THAT HIS/HER SKILLS ARE ADEQUATE, THE SURGICAL SKILL IS ADEQUATE, AND ALL NECESSARY NURSING AND ANCILLARY SUPPORT IS AVAILABLE IN ORDER TO PROVIDE SAFE PERIOPERATIVE CARE. IF ANY ONE OF THESE REQUIREMENTS IS UNSATISFACTORY, THE PATIENT SHOULD BE TRANSFERRED.

Slightly amended from the draft of
Dr. G. Moll
B.C. Anaesthetists' Society
24 May, 1990

A.D.Thomson
Medical Consultant,
Hospital Programs,
B.C. Ministry of Health
Victoria
27.5.90

PAEDIATRIC UTILIZATION STUDY **APPENDIX E**

STEERING COMMITTEE MEMBERSHIP

Mr. Duncan Ainslie - Director, Planning and Project Development, BC Children's Hospital

Dr. Phil Ashmore - Professor and Head, Dept of Paediatric Surgery, BC Childrens Hospital

Ms. Lynette Best - Vice President - Nursing, Lion's Gate Hospital (Sept 1989)

Mr. Kevin Bigham - Assistant Director of Nursing, Prince Rupert Regional Hosp. (Jan 1990)

Ms Joanne Harnish - Community Health Liaison Nurse, Vancouver Health Department

Ms. Leah Hollins - Nurse Consultant, Hospital Programs, BC Ministry of Health, Victoria

Dr. Tom S. Hourigan - Family Practitioner, Burnaby

Dr. Steve Kent - Paediatrician, Victoria General Hospital,

Dr. David Lirenman - Acting Professor and Head, Dept. of Paediatrics, BC Children's Hospital (Aug 1989)

Dr. Pat Melton - Paediatrician, Penticton

Mrs. Etta Richmond - Administrator, Chilliwack General Hospital

Ms. Karen Ryall - Head Nurse, 3F Unit, B.C.Children's Hosp.

Dr. Alan D. Thomson - Medical Consultant, Hospital Programs, B.C. Ministry of Health, Victoria

PAST MEMBERS

Dr. Don Hill - Professor and Head, Dept. of Paediatrics, BCCH (Deceased June 1989)

Dr. Ron MacPherson - Vice President, Medicine, Fraser-Burrard Hospital Soc. New Westminster (Resigned July 1989)

Ms. Alice Chen Wing - Mills Memorial Hospital, Terrace (Resigned Sept. 1989)